59,4:06

FOR THE PEOPLE
FOR EDVCATION
FOR SCIENCE

LIBRARY
OF
THE AMERICAN MUSEUM
OF
NATURAL HISTORY

NYSC NOTES NUMBER 128 JANUARY 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
MILTON WERNER, Jr.

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
GEORGE RAEIHLE
7924 Ankener Avenue
Elmhurst, N. Y. 11373

Vice President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd*Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY*

NEXT MEETING: SUNDAY, FEBRUARY 12th, 1967, at 2:00 P. M.

PROGRAM: "TELLIN' THE TELLENS"
by Dr. Kenneth J. Boss, Curator and Chairman of the Department of Mollusks, Museum of Comparative Zoology, Cambridge, Mass.

ECOLOGY
by Marian Schroth

SHELL-OF-THE-MONTH
by William E. Old

---

*EXCEPTIONS TO SCHEDULE:

April 9th, 1967:	Shells, Social and Supper. To be held at the Broadway Dance Studio, 31-08 Broadway, Astoria, Queens.
May 7th, 1967:	Our meeting at the Museum will be held on the 1st Sunday in May.

ADDITIONAL SHELL SHOW DATES (See NOTES No. 127)

February 14 - 18, 1967	The Fort Myers, Florida, Shell Club will hold its Shell Show during the week of Fort Myers' "Festival of Lights" celebration.
March 1 - 31, 1967	"The theme of the Chicago Shell Club's 1967 Shell Show will be 'The Wonder of Shells'.. on exhibit during the month of March at the Field Museum of Natural History." - - CSC Newsletter
March 16 - 19, 1967	Sarasota Shell Club Shell Show, Sarasota, Fla.
March 23 - 27, 1967	St. Petersburg Shell Club Shell Show, St. Petersburg, Florida.
March ? - ? 1967	The Broward Shell Club (Environs of Fort Lauderdale, Florida) will hold a Shell Show during March. We have received conflicting dates of March 7 - 9 and March 17 - 19.

SHELL SOUNDINGS

Among the many events scheduled for Key West's "Old Island Days" (January 27th through March 19th) and listed in the "New York Post" of January 10th, is a Conch shell blowing contest on February 25th.

You've never tried it? Well, conch horns (our own Strombus gigas) are often used by boatmen to sound signals across the water and, ashore, to call the kids. The conch horn we knew had an abbreviated mouthpiece replacing the tip of the spire, and gave out a distinctive bleat. But such refinements are not necessary to make music with shells. Read on . . .

[illegible]

[illegible] meets on the [illegible] Sunday of each month, September [illegible] MUSEUM OF NATURAL HISTORY.

[illegible], 1967, at 2:00 P.M.

[illegible], Curator and Chairman of [illegible] of Mollusks, Museum of Comparative [illegible], Cambridge, Mass.

[illegible]

[illegible] Clench

[illegible] Shelling, Social [illegible]. To be held at [illegible] Dance Studio, [illegible] Broadway [illegible]. Our meeting at the Museum will be held on the [illegible] Sunday in May.

INTERNATIONAL SHELL SHOW DATES (See NOTES No. 12)

The Fort Myers [illegible] Shell Club will hold its Annual Shell Show during the week of [illegible] "[illegible]" celebration.

The [illegible] of the Chicago Shell Club [illegible] Shell Show [illegible] on [illegible] during the month of [illegible] at the Field Museum of Natural History.

[illegible]

Sarasota Shell Club [illegible], Sarasota, Fla.

St. Petersburg Shell Club Shell Show, St. Petersburg, Florida.

The Treasure Shell Club [illegible] of Fort Lauderdale, Florida will hold a Shell Show during March [illegible] dates of March [illegible] and March 17 - 19.

[illegible]

[illegible] Island Days [illegible] published in the "New York Post" of [illegible] February 25th.

[illegible] Schwengel [illegible]

LISTEN TO THE SHELLS!

by Willie R. Antonowitz

Everybody talks about shells but nobody ever listens to them. Wanting to give them a chance to be heard, I brought to the December meeting a tape on which are recorded some hymns performed by a unique orchestra which undoubtedly none of our attending members had ever listened to before. The instruments of this orchestra consist solely of two species of shells: *Cassis cornuta* and *Charonia tritonis*.

Another strange fact about this tape is the place where it was recorded: Not on a Pacific island or on the Pacific coast but all the way around on the *other* side of the globe, right in the middle of Europa, hundreds of miles from any beach, in a small village near Nuremberg in Germany, the name of which is Neuendettelsau. Here a group of young men are assembled to form an orchestra which has been in existence for more than one generation -- though the membership, of course, continues to change. The members of the shell orchestra are missionary volunteers from the training center of the Evangelic-Lutheran Church which has been training and sending missionaries to Australia and New Guinea since the end of the last century.

It all started back in the 1920's with two missionaries, Keysser and Zahn, in two remote missionary outposts on the coast of New Guinea. It is the custom among the natives there to use signals blown on Triton or Helmet shells in a kind of "wireless telegraphy" for transmitting messages to each other over long distances. The two missionaries also took advantage of this shell telegraphy for mutual information.

Everything went fine for a long time and each transmitted sound signal was promptly and presently decoded. Until one day, when missionary Keysser heard the sounds of more than one shell coming from the hamlet where his co-worker was stationed. No matter how he tried, he couldn't make out the meaning of these new signals. It just wasn't one of the customary codes, so he didn't get the message.

At the next opportunity, Keysser set out to pay Zahn a visit and to find out what that sound was supposed to mean.

As it turned out, it was no message at all; Keysser had happened to eavesdrop on the first rehearsal of Zahn's very own invention: a shell orchestra. And while he was there Zahn assembled his orchestra and gave a special performance in honor of his guest, who so became the first European auditor to ever hear a real shell band.

As Keysser later reported, it was a funny sight: Approximately twenty Papuans lined up in a semicircle around Zahn, each one with a shell in his hands, their eyes glued to the conductor, eager to blow the shell on a sign from him. The way they were stationed in front of Zahn they actually were representing a living scale because each of them had only one note on his instrument. The biggest shell with the deepest tone was on the left, from there ascending to the highest pitch and smallest shell on the right end.

Missionary Zahn, the conductor, had a very long stick with which he could reach every one of his musicians. And as he tapped one after another on the head with this baton that one blew heartily into his shell as long as

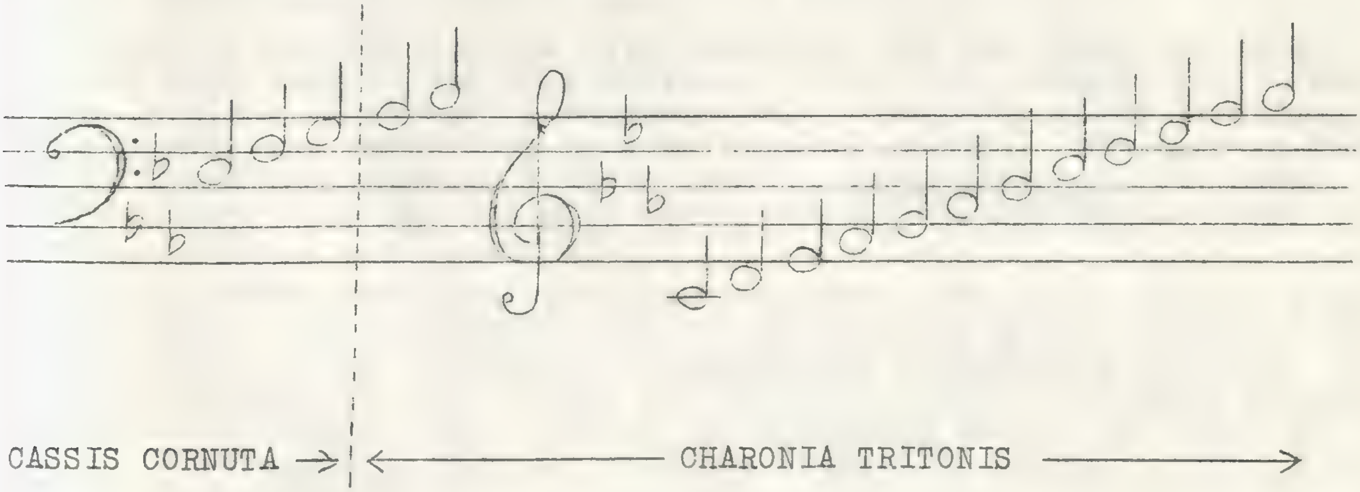
he felt the baton on his head. A skilled and indulgent ear was able to put together a familiar hymn.

The first rehearsals probably sounded more or less like a decrepit, asthmatic organ. But the Papuans had a barrel of fun out of it and got more and more practice and finally turned out such an accomplished co-ordination and togetherness that missionary Zahn even produced choirs for two voices on his human shell organ. Zahn, who incidentally received an honorary doctorate for his studies on the Papuan language, wrote a manual for playing the shells and issued scores of his repertory. As these were intended to help his native musicians they were very simple. He used numbers to symbolize each tone of the song and with periods and dots after the number he indicated whole, half and quarter notes. Now his musicians could play at sight. They just had to watch out for their number and make sure not to miss the chiming in.

When Keysser returned for retirement to his home mission in Neuendettelsau in 1946 he brought a complete set of music shells with him and trained the future missionaries - who in most cases already were members of the regular orchestra - in playing the shells. Since then the shell band of Neuendettelsau has been in continuous existence, though both missionary Zahn and missionary Keysser have died in the meantime.

Like every other wind instrument, the tone is produced by blowing through a hole which has been drilled in the apex or in one of the first whorls of the shell in such a manner that the air inside the shell is set in vibration. As there is but one hole there is not much variation of the pitch. The player can only lower the basic tone of his shell by a halftone. That's because playing the shell is not easy and demands a great skill. The right tone is produced by muscular control of the lips. The more the player moves away from the basic tone the more the quality is endangered and the player is never sure whether he hits the right note.

The tones of the shell orchestra reach from the deep basso of a foghorn to the clean whistle of an iron horse. The basic key of the shell register is E-flat, respectively C-minor. Helmet shells are used only for the deepest tones up to the G in the small octave. The higher notes are produced by Triton shells, the highest being the twice-accented G.



SHELLING AT THE LIDO, ITALY

by Ethelyn Woodlock

How I wish I were still in Venice! Three heavenly summer weeks, sketching, and I went out to the Lido many times, too. My shells from this area were not spectacular but I love the finding! Language can be frustrating, but my roommate could speak Italien and was with me on the first trip to the beach. We talked to the beach boy on the pier at Hotel des Bains but could not make him understand "pen" with hair! On my next trip I was alone and we spoke sign language for the most part, but I could understand: "tre giorni dopo che il vento va via " (three days after the wind goes away) - "sole" (sun) and come back then. I wanted Murex brandaris, also trunculus, with the animali. (He did not bother to save the operculums.)

At a fish market I picked out five brandaris (sold by the pound, to eat) and the man GAVE them to me. I wish now that I'd purchased a bushel! The Lido man brought a bagful to the hotel and the cuoto (cook) threw away all of the animali! I cried, then and there, on the spot! All of those beautiful live shells and no opercs.! In the bag, too, was a huge crab case and half of a Pinna nobilis which I left behind.

As for food, the chef was super. I ate Octopus, Sepia, Murex, mantis shrimp served whole (claws and all), mussels, Venus clams, etc. etc. Some of the etc. were other strange creatures of the deep. Little shrimp are called "scampi", the large ones "gamberini" and the Octopus (or was it squid?) is "calameri". At times it is well to know WHAT you are ordering! The seppia (two p's in Italien) are sliced like onion rings, the larger the tuffer. Same with calameri. My Octopus was served whole, very tiny, tender, and was eaten reluctantly -- but eaten. I feel that "calameri" is plural so that mixes up my English -- I should have said "octopusses" (those wonderful plurals of Octopi!).

One afternoon I found my way, all alone, down dozens of dark, narrow alleys, to the Museum of Natural History. I made swimming motions to a little boy and he took me to the dusty third floor to the shells. The labels, hand-written, were impossible to read and there was more sign language with an attendant, who let me know the Director could speak English but he was OUT. Another room had hundreds of jars with natural colored things and I'd have loved to have asked: "How do you keep the colors?" MY things in alcohol lose color very fast.

At Chioggia, a fishing village with beautiful red and orange sails to paint, we also went to the fish markets. Talk about strange fish! Would you like a slice of skate? I purchased many shells from the fishermen and discovered the name of an unknown bivalve at home. (It pays to know in which ocean and in which book to look!) Chlamys glabra, but among all of the ones found at the Lido none were yellow, neither are they in the book. (HOW is one to know?)

Twenty-four rather ambitious sketches came home with me as well as a shoe box and coffee tins packed with shells and Venetian glass. With our Paris stopover, by the time I unpacked, a Cassidaria echinophora, purchased from one of the beach boys, had filled the box with those awful white maggots. It all went outdoors, FAST. ALL of the trunculus smelled so that they went out of doors, too, for the ants and spiders to clean. It's all in the life of a sheller.

ADRIATIC SPECIES
Collected July 20 - August 10, 1966

* = from fishermen

Angelus incarnatus L.
" nitidus Poli
Acteon tornatilis L.
Anomia ephippium Lam.
Apporrhais pes-pelicani L.
Bittium reticulatum da Costa
* Cardium aculeatum L.
" tuberculatum L.
* Cassidaria echinophora L.
Cerithium vulgatum Brug.
Chlamys glabra L.
" varia L.
Cyclope neritea L.
Diodora italica De France
Donax politus Poli.
Ensis siliqua L.
Gibbula sp.
Calyptrea chinensis L.
Glycymeris voilascens Lam.
Gryphaea angulata L.
Modiolus adriaticus Lam.
* Macrocallista chione Lam.
* Murex brandaris L.
* " trunculus L.
Mytilus edulis L.
Natica millepunctata Lam.
Nassa mutabilis L.
" reticulata L.
Ocenebra erinacea L.
Patella coerulea L.
" vulgata
* Pecten jacobaeus L.
Scala clathrus L.
Turritella communis Brug.
Venus gallina L.
Venerupis texturatus Lam.

. . . Ethelyn Woodlock

SHELL CLUBS IN ITALY
by Anthony D'Attilio

Interest in the collecting and study of mollusks has shown a remarkable increase in the last few years. Although this has been apparent to us in the United States, the expansion has been relatively rapid as well in Europe. Among such signs of growth was the recent organization of the European Malacological Union and, with this, the various European national units associated with it.

The particular area that has recently come to our attention is Italy, through the receipt at the American Museum of Natural History of a publication entitled "Conchiglie". This periodical, published only in the Italian language, had its inception with Vol. 1, No. 1 in January, 1965, and is the organ of the "Conchiglia Club", Unione Malacologica Italiana-Milano. The members are apparently mostly amateurs.

The publication, of several pages, is printed on fine paper and in the later numbers contains illustrated plates. Although the numbers are monthly some issues are composed of two consecutive months. The table of contents of a recent number consists of the following:

Communication from the President
Activities of Region Groups
New Members
Profiles
Exchange Offers from Members
Books and Reviews

In the World of Shells, with a paper on Conus "Gloria Maris" and Conus "Gloria dudiae"; Lamellibranchs with taxonomic characters; Shells and Mathematics; and a paper of aesthetic interest on Architectonia maxima.

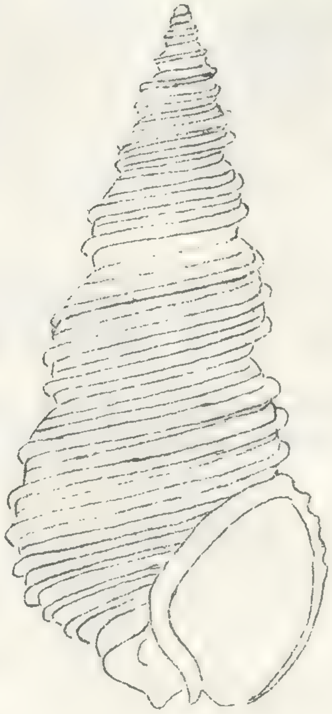
FASTIGIELLA CARINATA, A LITTLE KNOWN SPECIES

by Dorothy Jensen

My husband, Norman, and I were told about this species of marine mollusk from the Bahamas, Fastigiella carinata Reeve, of which only a few dead specimens have ever been found. There is nothing known about the species or its ecology. We were told of F. carinata by George and Mary Kline during their visit to our club. They had found one hermit crab specimen in about four feet of water at Powells Point, Eleuthera in the Bahamas, in 1952. Another specimen was found at Bottle Cay, one of the Schooner Cay Group off Southern Eleuthera, by A. J. Ostheimer III and is now in the Academy of Natural Sciences of Philadelphia (sp. #189519).

Since we were due for our summer vacation we decided to again return to Eleuthera. It was our fifth trip to the island and we made the search for this shell our project. We stayed at Governors Harbour in the middle of the island and made the trip to the southern end, a distance of about fifty miles, five or six times during our two weeks' stay. (See map, NOTES No. 108.) Unfortunately, the weather and water conditions were not favorable for shell collecting while we were there this year.

On our first visit to the lower section we started at Wemys Bight, which is between Powells Point and Lighthouse Point, and began walking south. We were turning over rocks that were exposed by the low tide, as it was too rough and murky to go into the water. Under one large rock there was a colony of hermit crabs -- in shells of many species. My eyes immediately focused on the larger of two shells that I had never collected before. They matched a drawing of the shell in the Klines' collection! One was adult, 45 mm. in length. The other, obviously a juvenile, was 18 mm. The juvenile Fastigiella does not have the siphonal fasciole or the deep umbilical crease that is present in the mature shell. On these shells we collected, the sculpture sonsists of a small spiral cord between each of the larger cords, except in the area immediately after the suture of each whorl, where there are two small cords.



2 X

Fastigiella carinata Reeve

A few days later, at Powells Point, Norman found another juvenile, 27 mm. long. Again it was dead, but the shell was in a better condition. It was in between the rocks at the low tide line and without the usual hermit crab. The next day, in the beach drift at Windemere Island, we found our fourth specimen, another juvenile, 15 mm. -- small, broken, but

unmistakably this species. Windemere Island is on the ocean side of Eleuthera and quite a distance north. We never did find a live Fastigiella -- which may or may not be completely white as are all these dead specimens.

In looking over some unidentified shells collected at Eleuthera on previous trips, I came across another specimen that we had collected in 1960. This one was found just north of Governors Harbour on the Caribbean side of the island. Unfortunately this, too, was from the beach drift at the high tide line. The specimen measures 32.4 mm. and is now in the American Museum of Natural History in New York.

Since none of the popular books list Fastigiella carinata, here is an excerpt from the original description by Lovell Reeve as published in THE PROCEEDING OF THE ZOOLOGICAL SOCIETY OF LONDON, Vol. XVI, 1848:

"The shell which I am about to describe, from the collection of Hugh Cuming, Esq., is of an entirely new form, differing generically as well as specifically from any of the class to which it belongs. It is of an elongated turreted growth, and may be said to partake in almost equal proportions of the characters of two genera somewhat removed from each other in the system, Turritella and Cerithium."

Henry Pilsbry wrote a paper on the specimen of Fastigiella found by Mr. Ostheimer [THE NAUTILUS, Vol. 66 (3), January, 1953]. Dr. Pilsbry remarked: "Reeve thought that it was intermediate between Cerithium and Turritella. H. & A. Adams, in their GENERA OF RECENT MOLLUSCA, placed the genus at first in Fasciolariidae, but in their second volume, p.655, in Cerithiidae. Here it was left by Tryon (MAN. CONCH., 9:199) and, with a question mark, by Thiele." Dr. Pilsbry also mentions the specimen found by the Klines in THE NAUTILUS, Vol. 66(4), April, 1953.

References mentioned by Dr. Pilsbry are

Johannes Thiele, HANDBUCH DER WEICHTIERKUNDE, 1929, p. 214.
Mörch, THE JOURNAL DE CONCHYLIOLOGIE, Vol. 25:208, 1877.
Dr. C. M. Poulsen, CATALOGUE OF WEST INDIAN SHELLS, p. 9, No. 533, (Copenhagen, 1878).
A COMPLETE LIST OF BAHAMIAN SHELLS, compiled by Paul Dean Ford, p. 8. This list consisted of shells collected and classified by the Bahamas Conchological Club, 1941-1944.

(The accompanying drawing, by Tony D'Attilio, is of the 45mm. adult specimen we found near Wemys Bight.)

JANUARY, 1967, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome these new members who joined us during the past year, and bring you to date on address changes received since our January, 1966, supplement: (* denotes family membership)

ALLEN, Mrs. Betty	Box 822, Port Isabel, Texas 78578
ANTONOWITZ, Mrs. W. R.*	149 Starr St., Brooklyn, New York 11237
ATKINS, Mr. Martin	164-03 89th Ave., Jamaica, New York 11432
BAUER, Mr. Edgar	2522 86th St., Jackson Hgts., N. Y. 11369 (Temp.) Daniel Carrion 249, Miraflores, Lima, Peru (Home)
BEAVEN, Dr. J. M.*	175 West Ridgewood Ave., Ridgewood, N. J. 07450
CARR, Miss Mary J.	2 Washington Sq. Village, New York, N. Y. 10012
COPE, Mr. & Mrs. James	44 East 67th St., New York, N. Y. 10021
CRAGIN, Mr. & Mrs. Stuart	Nairshon Island, Woods Hole, Mass. 02540
DALE, Dr. Ruth	20 West 77th St., New York, N. Y. 10024
DAWLEY, Mrs. June	300 West 55th St., New York, N. Y. 10019
De la VERRIERE, Jean Jacques	99 Mac Dougall St., New York, N. Y. 10012
FALK, Mr. Paul*	140-11 219th St., Laurelton, New York 11413
FALTER, Mr. & Mrs. Anton	69-45 108th St., Forest Hills, N. Y. 11375
FISHER, Mr. & Mrs. Fred	31-51 47th St., Astoria, L. I., N. Y. 11103
GASTON, Mrs. William H.	147 Duff Drive, Avon Lake, Ohio 44012
GRECO, Mrs. D.*	107 Cerny Place, West Islip, New York 11751
GREENBERG, Miss Lenore	21 Bond St., Great Neck, New York 11021
HARMON, Mr. Francis*	464 Riverside Drive, New York, N. Y. 10027
HICKMAN, Mrs. Harriette L.	11015 First Ave., Stone Harbor, N. J. 08247
HOAG, Miss Norma	41 Perry St., New York, N. Y. 10014
HOFFMAN, Mr. & Mrs. Ray	480 Valley Road, Montclair, New Jersey 07043
HULSWIT, Mr. Mart	680 West End Ave., New York, N. Y. 10025
HUNTER, Mr. Blaine*	126 Cedar Avenue, Hackensack, New Jersey 07601
HUNTER, Mrs. Sandra	350 East 77th St., New York, N. Y. 10021
JACOBSON, Mrs. M. K.*	455 Beach 139th St., Rockaway Beach, N. Y. 11694
JAHNS, Miss Lillian	494 Logan St., Brooklyn, N. Y. 11208
KEANY, Miss Khaki	401 East 58th St., New York, N. Y. 10022
KNAUER, Mrs. Freda S.	10318F Malcolm Circle, Briarcliff Village, Cockeysville, Maryland 21030
KUPPER, Mr. & Mrs. George	301 East 48th St., Apt. 5F, New York, N. Y. 10017
LEIBOWITZ, David	2022 East 21st St., Brooklyn, N. Y. 11229
LERNER, Miss Marilyn	230 East 27th St., New York, N. Y. 10016
LEVINE, Mrs. Stanley*	34-05 12th St., Long Island City, N. Y. 11106
MARSH, Mrs. Therese	P. O. Box 22291, Fort Lauderdale, Florida 33315
MILLER, Dr. Sheldon	2122 Smith St., Merrick, New York 11566
NANKERVIS, Mr. & Mrs. Ronald	242 Orient Way, Lyndhurst, New Jersey 07071
PAGNIAZ, Mrs. Delmira	2 Washington Sq. Village, New York, N. Y. 10012
PALACE, Mr. Edward	2031 Colonial Avenue, Bronx, New York 10461
POLLARD, Mrs. R. E.	2135 Franklin Ave., East Meadow, L. I., New York 11554
PORRECA, Mr. Humbert	287 Bailey Road, West Henrietta, New York 14586

(continued)

REBBO, Mrs. Nina
REBBO, Miss Marcia 22-63 37th St., Astoria, New York 11105
RICHARDS, Mrs. Margaret c/o New Zealand Consulate General, 630 Fifth Avenue, New York, N. Y. 10020
RIDGE, Mrs. William 373 Fortuna Ave., St. Augustine, Florida 32084
RISTJANSSON, Mr. Gudmundus 41 Perry St., Apt. 1A, New York, N. Y. 10014
ROBBINS, Mr. Clinton V. D. 317 Beech St., Kearny, New Jersey 07032
ROCHESTER SHELL AND SHORE CLUB c/o Mrs. James Barton, Librarian, 20 Newfield Drive, Rochester, N. Y. 14616
ROSSMAN, Margaret 90 Laurel Hill Terrace, New York, N. Y. 10033
SAUL, Mrs. Mary (As of April, 1967:) Gate Cottage, Castlemorton Common, Malvern, Worcs., England
SCHICK, Dr. Jane 955 Park Avenue, New York, N. Y. 10028
SCHULTZ, Mrs. Eileen Hedy 244 South Broadway, Yonkers, New York 10705
SNYDER, Mr. & Mrs. Martin Avery 2 Washington Sq. Village, Apt. D-6, New York, New York 10012
STANLEY, Miss Laura M. 210 Main St., New Paltz, New York 12561
SZUMSKI, Miss Wanda 47 Driggs Avenue, Brooklyn, New York 11222
TAKACS, Miss Patricia 11 Henry Court, Dobb's Ferry, New York
VAN RIPER, Dr. Mildred J. 2406 North Gulf Boulevard, Indian Rocks Beach, Florida 33535
VON ELSKY, Mrs. Roman 5400 S. W. 97th Ave., Miami, Florida 33165
WALTON, Mr. Ernest 330 East 33rd St., New York, N. Y. 10016
WRIGHT, Rev. Calvin T. P. O. Box 155, Farmingville, L. I, N. Y. 11738

CHANGES IN ADDRESS:

BENNETT, Mr. & Mrs. C. G. 640 73rd Street-Ocean, Marathon, Florida 33050
BURCH, Mr. John Q. 1300 Mayfair Road, 61-L, Seal Beach, Cal. 90740
BURGER, Mrs. Marion 2219 Newkirk Ave., Brooklyn, New York 11226
CLOVER, Mr. Phillip W. P. O. Box 3246, Chula Vista, California 92011
D'ATTILIO, Mr. & Mrs. Anthony 444 East 82nd St., New York, N. Y. 10028
EDDISON, Dr. Grace G. (As of Feb. 15, 1967:) 810 Soundview Drive, Mamaroneck, New York 10543
GOLDEN, Dr. Joseph 3506 Perry Ave., Tampa, Florida 33603
HELGESON, Mrs. Paul 5836 Clemens, St. Louis, Missouri 63112
LEE, Dr. Harry G. 851 Clifton Court Circle, Apt. 5, Atlanta, Georgia 30334
MASKALERIS, Miss Dorothy 310 East 49th St., New York, N. Y. 10022
PALM BEACH COUNTY SHELL CLUB c/o Mrs. R. E. Kennedy, Sec'y, 222 Ellamar Road, West Palm Beach, Fla. 33405
RICHMOND, Mrs. Ruth 220½ South Reeves Drive, Beverly Hills, California 90212
SOKOLOFF, Mr. Stanley 2200 Central Road, Fort Lee, New Jersey
WELCH, Miss Linda (Now Mrs. Paul Helgeson; see above.)

NYSC NOTES NUMBER 129 FEBRUARY 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
MILTON WERNER, Jr.

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
GEORGE RAEIHLE
7924 Ankener Avenue
Elmhurst, N. Y. 11373

Vice President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd* Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY*

NEXT MEETING: SUNDAY, MARCH 12th, 1967, at 2:00 P. M.

PROGRAM: MOLLUSKS THROUGH THE AGES
by Mathilde P. Weingartner
COLLECTING SNAILS IN THE TUNDRA
by M. K. Jacobson
SHELL-OF-THE-MONTH
by M. C. FULDNER

---

*EXCEPTIONS TO SCHEDULE:

April 9th, 1967: Shells, Social and Supper. To be held at the Broadway Dance Studio, 31-08 Broadway, Astoria, Queens.

May 7th, 1967: Note that our meeting at the Museum will be held on the first Sunday in May.

NYSC SHELL-SOCIAL:

Plans promise an afternoon every bit as delightful on April 9th as our party of last year. There will be tables of shells for sale, and an hour's auction of the finer shells -- and it is your donations that will make it a success! Your "extra" specimens, the overflow of your cabinets, literature, etc. -- they are all needed! Bring them in shopping bags, in cartons, in your pockets -- to the March 12th meeting. Chairman Anthony D'Attilio and his committee will receive them most happily.

In addition to the sales and auction, there will be a raffle, a motion picture in color, a social hour and a buffet supper. For our last affairs home made cakes were served with the coffee, and we'd like to enjoy more of those luscious creations. Will our pastry chefs again give us that pleasure and volunteer to bake? Anne Taxson will be glad to hear from you -- see her at the March meeting or telephone KI.9-1517.

ADDITIONAL INFORMATION ON FLORIDA SHELL SHOWS

March 9th, 10th & 11th, 1967: The Broward Shell Club's Shell Show will be held in the Community Room (4th floor) of the Jordan Marsh Department Store, located on East Sunrise Blvd. in Fort Lauderdale. Judging the show will be William E. Old, Dr. Germaine Warmke, and Harvey Meyer of Captiva. NYSC members are cordially invited to visit.

March 23rd through 27th, 1967: The St. Petersburg Shell Club's 20th annual Shell Show will be held in the Treasure Island Auditorium, 120 108th Avenue, Treasure Island. (Plenty of free parking, or take Gulf Beach bus.)

April 1st & 2nd, 1967: Key West Shell Fair.

See also NOTES Nos. 127, 128

CORRECTION, PLEASE!! The usual typographical error is understandable by context, but last month we really gave you an enigma: NOTES No. 128, p. 5, next to last line, please change "Gloria dudiae" to read "Gloria Indiae". Thank you, and our apologies.

"TELLIN' THE TELLENS" by DR. KENNETH J. BOSS

At our February 12th meeting we had the pleasure of having as guest speaker Dr. Kenneth J. Boss, Curator of Mollusks at the Museum of Comparative Zoology, Harvard University. The subject of his talk was the Tellinacea, on which he has done extensive research. His studies on the Western Atlantic Tellininae are being published in Volume 4 of JOHNSONIA: No. 45, "The Genus Tellina (Part I)" is dated October 31, 1966; there will follow No. 46, "Tellina (Part II) and Tellidora", and No. 47, "Strigilla".

Tellinacea is an ancient family of bivalves, the fossil record going back 100,000,000 years, to the Cretaceous. The family was written of in the works of Dioscorides, who is credited with having introduced the generalized name "tellen", Pliny, and Aristotle; the name "Tellina" itself was proposed by Linné in the SYSTEMA NATURAE, and work of a descriptive or taxonomic nature has continued into recent times. Among such studies mentioned were those by Dall on a specific and generic level for the western Atlantic, and the review of all supraspecific taxa by Salisbury in 1934. There are about 150 generic names at the present time, a number which can be expected to be reduced with further studies. On a specific level there are at the present time about 4,000 Recent and fossil names in this family! Dr. Boss observed that there are about 55 good species of tellens to be found in the western Atlantic, the same number in the eastern Pacific, and more in the Indo-Pacific. The majority of the tellens are tropical, although there are some Boreal and Arctic species which belong to allied genera.

Of particular interest to an organization like the New York Shell Club was Dr. Boss's observation that shell morphology in the Tellinidae can be reliably depended upon for species identification. He then reviewed for his listeners shell characters including hinge dentition, ligament, pallial and adductor scars and external sculpture. Color in the tellens ranges from red through orange to yellow, with varied intensities. Concentric sculpture is usual on the dorsal surface, but radial sculpture is at times also present, giving the shell a cancellate appearance. The most interesting sculptural quality occurs however in genera like the Strigilla and Scissula, where acentric, oblique ridges cross those concentrically arranged. For this type of sculture Dr. Boss has coined the word "scissulate". He suggested that such sculptural characters may have adaptive environmental value for the Tellinacea which inhabit mostly sandy or muddy-sandy substrates, in that the ridges might possibly facilitate entry into the substrate and then serve as an anchor against the reciprocal pull of the siphons. Some species which live rather deeply in the substrate can extend their siphons as much as ten times the length of the shell -- the exhalent siphon reaching through the sand just to its surface, the inhalent siphon stretching well into the water where it takes in food.

The siphons, which are separate, are supported near their base by the so-called cruciform muscles which signal the stage of extension. Occasionally, however, when the bivalve is disturbed, the adductor muscles may react too quickly for the siphons to be entirely withdrawn before the valves snap shut -- thus snipping off the siphons. The siphons can regenerate, but from what degree of amputation has not been determined.

. . . . ANTHONY D'ATTILIO w/r

BOOK REVIEW

BRITISH BIVALVE SEASHELLS, by Norman Tebble - 212 pages, 110 text figures; 8 color, 4 black and white plates. Published by the British Museum; price 14 shillings ($2) plus postage (15¢).

This is an excellent review of the bivalve mollusks of the seas around the British Isles. The species are all illustrated in text figures in black and white or color plates of a high degree of excellence. The descriptions -- set off from the rest of the text by being printed in italics -- are clear and thorough and the discussions following are informative and frequently of high intrinsic interest. The superfamilies are defined and a key to the species provided for each. In addition, the work also contains an excellent key at the beginning to aid in the identifications of the superfamilies themselves. In view of the excellence of the paper, the binding (paper covered, but very strong), and the beautiful illustrative plates, the price is more than reasonable, especially in these days of creeping inflation. All in all, here we have a well produced, thoroughly competent guide for amateur and specialist alike.

The reviewer, not too familiar with the shells of Europe, is not competent to discuss the accuracy of the nomenclature, but what little he knows was nowhere in conflict with the names appearing in the book. In general, the nomenclature adopted is rather more conservative than that appearing in many works published on this side of the Atlantic. Thus, Aequipecten and Hinnites, genera here, are considered subgenera of Chlamys by Tebble. Mercenaria mercenaria appears as Venus (Mercenaria) mercenaria, and several genera of Tellina appear as subgenera. Much must be said in favor of this conservative treatment as compared to our own rather radical methods and especially to the completely wild-eyed behavior of some Australian and New Zealand malacologists.

One raised along the comparatively barren East Coast (north of Florida) can only view with green-eyed envy the richness of the fauna here described. There are numerous really gorgeous pectens, tellins, lucinas, and venerids, as well as a rich representation of such northern forms as Cyprina, Nucula, and especially Astarte. This is all the more wounding when one realizes that the British Isles lie far to the north of our own impoverished area.

The book is obtainable from the Publications Officer, British Museum (Natural History), Cromwell Road, London, S. W. 7.

. . . . M. K. JACOBSON

A WORD TO THE NOVICE: Most of the very same "British" shells that are so well described in the excellent English publications are found on the French channel coast as well as Spain, Belgium, Holland, Germany, and in several cases even in the Mediterranean area. Many "Australian" shells are found in New Zealand, and "Florida" shells in Texas, etc. etc.

An acquaintance with the zoogeographical provinces of the seas will help you to better understand the distribution of species and assist you in selecting literature for research. You might start by perusing a map showing the currents of the oceans. Note the thermal barriers -- and go on from there.

OUTDOOR AND CONSERVATION EDUCATION PROJECT

Mr. Charles Lewis, Director of Outdoor and Conservation Project, School Districts, Town of North Hempstead, spoke before the New York Shell Club at a recent meeting. He told us that the purpose of the pilot project was (1) to increase the students' interest in marine science and in this connection periodically take them out of the classrooms during school hours, getting them to the "water environment" and introducing them to the living marine community. SCUBA activities would also be established and, where there is a need, SCUBA Clubs. The cooperation of established clubs and activities such as scouting and others would be called upon for participation and contribution to the program. Long Island has been pushing to have a National Oceanographic Institute established here, therefore the emphasis will be put on study of marine science in the school program.

Moving from the marine science, the second phase would have to do with conservation of natural resources and field trips along nature trails. They will establish exploratory groups and plan to obtain sextants and other types of instruments to familiarize the children with their use. Along these lines, another specific activity is school camping (also during school hours) to acquaint groups with camping techniques and nature study.

A fourth phase of the program would have to do with the growing of plants by the children, and which could be sold by them, somewhat along the lines of the 4-H Club. Soil erosion, bird feeding and nature trails would all be included in the program.

The fifth phase would be an extension of specific recreational activities such as canoeing, sailing, archery -- giving instruction in such sports.

Mr. Lewis closed his talk with an invitation to New York Shell Club members to participate in the presentation of sea life, specifically shells, saying that he would appreciate it if anyone would volunteer to talk to groups. (Mr. Lewis may be reached at 345 Lakeville Road, Great Neck, New York 11020. Phone: 516 HU.2-8650.)

. . . GRACE MC DOUGALL

INTERNATIONAL SHELL CLUB FOR YOUNG PEOPLE?

An excellent idea, and two young men of the New York and Philadelphia Shell Clubs are working on it. It would of necessity be a correspondence club, i. e. all communications would be by mail; a (mimeographed?) publication is planned which would contain information on shells, shell collecting, conchological and malacological literature, what studies should be undertaken in preparation for a career in malacology, and various other subjects of mutual interest.

Young people from all parts of the world are invited to be a part of the proposed club. Those interested should contact either of these young men:

Mr. Edgar Bauer, whose address until the end of March is
25-05 81st Street, Jackson Heights, New York 11369.
Home address: Daniel Carrion 249, Miraflores, Lima, Peru.

Mr. Steven J. Britz, 13 Plymouth Road, Cherry Hill, New Jersey 08034.

SHELLING IN HAWAII

by Neal and Eva Seamon

Hawaii is well known for its famous surfing. But to shell collectors surfing means rough water and generally poor beach collecting. The high tide line will be filled with only fragments of shell, unlike the deposits of gentle tides in places such as Florida -- where shells in good condition can usually be found. However, "every dog has his day", and when the summer rolls around the waters become calm and the surfer puts his board away, leaving the beaches free to the shellers. In general the windward coasts of the chain of islands are extremely rough, being constantly whipped by the strong and gusty trade winds from the northeast. The leeward coasts escape the full lash of the winds and are generally calmer all year around. In the summer, however, the great surfing areas of the windward coasts become magically calm around the first week in July. This calm period extends to the end of September and sometimes later.

The reef formation around the chain and nearest the shore line is not well developed, and reef collecting is best at several points on the island of Oahu. The best molluscan fauna (and the healthiest coral) is on the windward coasts where plankton comes in. Kahuku reef on the north shore of Oahu is our favorite collecting area. There the reef at low tide can be picked along its length of over a mile and its width of 20 - 40 feet. The water temperature is warmish with the average temperature of 76 - 78 degrees. Underwater temperature is fairly constant to a depth of 300 feet. Under ideal conditions underwater visibility is good up to 100 feet. But caution is the word when diving, especially in strange localities -- the ocean around the islands is filled with swift currents ready to sweep the tired swimmer miles to sea.

Hawaii is the only American State in the Indo-Pacific faunal area. Its waters contain more than 1500 species of marine mollusks, many of them endemic. Diving for shells is the best method of obtaining good specimens, and so it is in the homes of Hawaiian divers that the best collections are seen. Most of the uncommon and rare shells are found only in depths reached with the aqua lung or by a good free skin diver. Overcollecting, bad weather, dredging, filling, and polluting have decimated the inshore populations in many areas -- to the regret of Hawaiian collectors. (This remark does not apply to the islands other than Oahu, where we spent three years collecting in shallow water.)

Hawaii doesn't have Volutidae; collectors here specialize in collecting mainly the Conidae and the Cypraeidae of which there are over sixty species. Among the endemic shells and most sought after species are:

Conus spiceri	This is a subspecies of virgo and is rare, found mainly by aqua lung divers.
Conus suturatus	A species found also in Australia and Africa but differing slightly in marking from Hawaiin specimens.
Cypraea tessellata	A gem of a shell rarely found, taken mainly by skin and SCUBA divers from in and under Porites coral. In years past this shell was found in shallow water but no such finds have been reported for many years. The shell is strikingly beautiful with its checkered pattern from whence came its name.

Cypraea gaskoini This small shell was considered rare and endemic as late as 1963 but the species is now found in small numbers in the eastern Indo-Pacific area. The shell, a bright orange-red, fades to a dull straw color when dead. It is collected mainly by SCUBA and the favorite place is the Island of Maui.

Cypraea semiplota Mighels. A once commonly found shell, it has now all but disappeared from the scene -- though a recent find of one from the base of a black coral tree in deep water has been reported. The shell was often taken in very shallow water, even at Waikiki, in the 1940's. The live taken shell is brilliant blackish with small white spots. A few forms were given subspecific rank but the present view leans to one species with some variation in its form.

Cypraea granulata Pease. A remarkable cowry that has no glossy layer. The dark maroon color with the deep ridges separates this shell from its shiny cousins. This *Cypraea* lives in and under coral and is collected only by divers, though dead beach shells, often in good condition, are found on northern beaches. The shell fades rapidly after it is dead and exposed to light.

Cypraea sulcidentata Gray. The deeply grooved teeth and color when fresh of a deep red-brown make this a prize shell wanted by all collectors. It fades rapidly when exposed to light, so few collectors in other parts of the world can appreciate its true beauty. Though considered common, it is usually found only by diving.

Cypraea tigris Linné. The subspecies *schilderiana* C. Cate 1961 found here in the Islands grows to over five inches and is collected only by skin diving or with SCUBA. This *tigris*, unlike its Indo-Pacific cousins, is never found intertidally (Alas!). The shell is considered rare.

Strombus helli A small endemic stromb from deeper water and found only with SCUBA or by dredging in sandy areas. The shell is considered rare when live taken, though hundreds of bleached and broken dead shells are cast on some beaches -- indicating that the shell is not rare in nature.

Strombus vomer hawaiiensis. A beautiful stromb that is extremely rare and when found alive it has usually been by SCUBA, in deep water on a sand and coral rubble bottom. The writer has a perfect dead specimen from 10 feet of water at Haliewa on the north shore of Oahu.

Murex pele Pilsbry. This beautiful and small *Murex* comes in bright colors such as yellows, oranges, reds and purples as well as white. It is the same shell sold from Japan as *anatomica*. It is rare in Hawaii and collected by diving. Beach specimens, also, are rarely found.

Indo-Pacific shells occur throughout their range in generally similar habitats. But when they appear in Hawaii they are often different. The indicator species found in the Indo-Pacific -- such as Cypraea erosa, vitellus, and lynx -- are present in Hawaii but in such small numbers that they appear to be dying populations. The erosa is extremely rare and when found here is in deep water compared to its shallow water, intertidal habitat in the Indo-Pacific. The same is generally true for the other two cowries, vitellus and lynx. We have also mentioned Cypraea tigris schilderiana as present in Hawaii but in a different habitat and in different frequency. Cypraea schilderorum Iredale, also, is in deeper water in Hawaii, and is considered rare here. None of the above species are ever taken intertidally. The Cypraea taken intertidally are caputserpentis and maculifera. Cypraea moneta is also present but is uncommon -- I found only one in three years. Cypraea chinensis is very large in Hawaii, found only in deep water by divers, and also differs from its Indo-Pacific form.

Another interesting variation found in Hawaii is "giantism" among some shells. Because of the different ecological and temperature factors, this "giantism" may have been created by natural selection. Some shells very large here and which often reach their maximum size in Hawaii are:

Conus striatus, textile, retifer and leopardus.
Cypraea tigris, mauritius, talpa, isabella and scurra.

Shelling in Hawaii is not a bed of roses for the beach collectors, but there are treasures to be found for those who venture into the sea. Our advice to collectors who come to shell is to come in the summer months, when the conditions are most favorable for reef collecting and diving.

* * *

Illustrating his talk with color slides, Mr. Seamon at our January meeting pointed out the characteristics of various species: he showed us that Conus striatus from the Indo-Pacific has a very low spire; the same species from Hawaii has a depressed spire. Displayed also was the variability of shape and color of Conus pennaceus. There was an unusual specimen of Cypraea maculifera -- ordinarily brown, this one was quite green in color. Could it have been algae covered by gloss?

While in Hawaii the Seamons observed many species in their aquarium, and told of captive Conus catus killing and devouring Cypraea caputserpentis and other cowries as well as small fish. The prey is stunned or killed with venom injected by the Conus' "harpoon" before ingestion. Again Mr. Seamon was emphatic about the necessity of UTMOST CAUTION in handling cones. ANY Conus -- not just the half-dozen or so species known to have caused fatalities. He referred to a pictured Conus sponsalis, about 3/4" when adult. A similar shell had caused a strong reaction in a young sheller when he was stung collecting the shell in 1964. In spite of immediate medical assistance, which is unlikely, people with heart or allergic conditions could conceivably have hazardously strong reactions to many Conus poisons which are not officially considered virulent. (Don't be a guinea pig!)

One of the last slides showed Nodopecten langfordi, a rare bivalve found from 5 to 50 fathoms. It was only about 1" in size, but with warm colors splashed over its wide ribs and its glossy interior. Mr. Seamon's comment: "One of the most beautiful shells in the world!" We agree.

NYSC NOTES NUMBER 130 MARCH 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
MILTON WERNER, Jr.

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
GEORGE RAEIHLE
7924 Ankener Avenue
Elmhurst, N. Y. 11373

Vice President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY, with these exceptions:

SUNDAY, APRIL 9th, Social meeting in the rooms of the Broadway Dance Studio, Astoria, Queens;

SUNDAY, MAY 7th (the _first_ Sunday in May), at the Museum.

NEXT MEETING: SUNDAY, APRIL 9th, 1967, at 2:00 P. M.

THE PLACE: BROADWAY DANCE STUDIO (Phone: AS.4-1503)
31-08 BROADWAY
ASTORIA, QUEENS, N. Y. (Directions below.)

PROGRAM: AUCTION OF THE FINER SHELLS

SALE OF SHELLS ALREADY VALUED

MOTION PICTURES OF BERMUDA MOLLUSKS by Russell Jensen of the Garden State Shell Club

RAFFLE No. 1: Veronica Johns of "Seashells Unlimited" is offering a choice of one of these fine books:
"American Seashells" by Abbott.
"Shells of the Western Pacific in Color" by Kira & Habe (text in Japanese).
"Seashells of Tropical West America" by Keen.
"Australian Seashells" by Allen.

RAFFLE No. 2: Dr. Maria Falter is donating a choice of either:
"Shell Collecting, An Illustrated History" by Dance, or
"A Field Guide to the Shells of our Atlantic and Gulf Coasts" _and_ "A Field Guide to Shells of the Pacific Coast and Hawaii", both volumes by Morris.

If time permits -- A color slide presentation: SHELLS IN ADVERTISING, by George Raeihle.

REFRESHMENTS, followed by a

BUFFET SUPPER which will be topped off with our own pastry chefs' homemade cakes and coffee!

DONATIONS have not materialized as expected. We hope it's just that you've been holding them to bring to the party instead of to previous meetings. Literature and related items are also very welcome. The studio will be open at around 1:00 P. M., so bring in your donations early enough (1:30 - 1:45?) so that the committee will have time to arrange and display them.

Guests will be welcome on payment of dues ($3.00) entitling them to full membership for one year.

DIRECTIONS: Only twenty minutes from Times Square, the Broadway Dance Studio is very conveniently reached by B. M. T. subway, ASTORIA line to the BROADWAY stop, which is the third stop beyond Queensboro Plaza. A free transfer from the I. R. T. Flushing line to the B. M. T. ASTORIA

train may be made at Queensboro Plaza. .. The nearest station on the Independent Subway line is the local (GG train) stop at Steinway Street and Broadway. From this point you may either take a bus or walk the 8 blocks in a northwesterly direction up Broadway to 31st Street.

The studio so generously donated for our use by Dorothy Jensen is on the second floor of the Household Finance Building, "HFC", corner of 31st Street and Broadway, with the entrance at 31-08 Broadway. The building is in sight as you exit from the B. M. T. station at BROADWAY.

BY CAR: Queensboro Bridge to Northern Blvd. to 31st St., left on 31st St. (under the El) to Broadway. .. Or Triboro Bridge to Queens, take the first exit in Queens and turn right under the Elevated (it's in sight as you exit) along 31st St. to Broadway. .. From Long Island you may take Grand Central Parkway to the last exit before the Triboro Bridge, along Astoria Blvd. a short distance to 31st St., turn left under the El to Broadway. .. From other areas such as Queens and Brooklyn check your map and you will see that Queens Blvd., Roosevelt Ave. and Northern Blvd. all intersect Broadway east of 31st St. Chart your course and come! You'll be so glad you did!

If we have left some of your questions unanswered you may telephone us at 212 NE.9-2559 (Raeihle) or 212 AS.4-1503 (Jensen).

NOTES, NEWS, NOTICES
From AMU ANNUAL REPORTS FOR 1966

The AMERICAN MALACOLOGICAL UNION will hold the thirty-third annual meeting at Ottawa, Canada, July 31 - August 4, 1967. Those attending will be guests of the National Museum of Canada, of Carleton University (providing housing and meeting room for some of the sessions) and of Dr. Arthur H. Clarke, Jr., who has assumed responsibility for making all arrangements. Details will be furnished all members in April.

* * *

The Pacific Division, American Malacological Union will convene in 1967 at Asilomar, Pacific Grove, California, June 28th to July 1st. All members of that group will receive meeting notices; others wishing to attend should request information from Mrs. G. A. Hanselman, 5818 Tulane Street, San Diego, California 92122. Send 50¢, please.

* * *

From Dr. G. Alan Solem:

During the recent 11th Pacific Science Congress in Tokyo, a dream of Dr. Tadashige Habe was realized by the formation of the PACIFIC MALACOLOGICAL UNION. Open to all who are interested in malacology of the Pacific region, regardless of their residence or nationality, this organization expects to promote the study of Pacific Ocean mollusks through sponsoring coordinated meetings with the Pacific Science Congresses, publication of a newsletter relating malacological activities and other activities. Formed by over 50 malacologists representing Japan, United States of America, Australia, New Zealand, Great Britain, and China, the first President is Dr. Tadashige Habe, National Science Museum, Tokyo, and Vice-President is Dr. D. F. McMichael, Australian Museum, Sydney. Dr. Harald Rehder of the United States National Museum is a councilor of the new organization. Annual dues are $2.00 and information can be obtained from Dr. Habe at the above address.

"HEINZ' 52 VARIETIES"

The subject of Harold Feinberg's presentation at our December meeting, titled "Heinz' 52 Varieties", was not canned goods, but tree snails -- the Florida Liguus. The featured performer was Libby the Liguus -- a large drawing, in color, of Liguus fasciatus castaneozonatus. Harold pointed out that this, being translated, means "chestnut banded banded banded".

The commonly accepted taxonomy of the species recognizes eight subspecies and a total of 52 color varieties. Harold does not consider the subspecies valid. His reasons begin with the fact that the Liguus population of Cuba, where fasciatus originated, is named as four species with subdivisions, and that of Hispaniola, one (Liguus virginea Linné). The species is believed to have emigrated to Florida on floating logs. Because the color varieties there are not isolated either geographically or physically, and because experiments suggest that they will crossbreed and produce fertile young, Harold believes that the variations are nothing more than the result of color degeneration. With the assistance of Libby the Liguus, he demonstrated a continuity in color and pattern from castaneozonatus through the paler markings. As the speaker system played the haunting strains of "The Stripper", he stripped layers from the drawing, converting Libby into a succession of variations and showing, in a convincing fashion, that each may well have evolved from the preceding.

Harold also noted that the familiar green stripe is not in the shell, but in the periostracum.

As exhibits, Harold employed the two-page illustration from the NATIONAL GEOGRAPHIC for March, 1966, showing the 52 varieties, and an "enlargement" of it illustrated with 44 real shells out of the 52 pictured.

In answer to a question, only six of the members present could say they had collected Liguus.......Harold's theory led Tony D'Attilio to suggest that it might be possible to hybridize new mollusks.

. . . MILTON WERNER, Jr.

A GLANCE AT MARTINIQUE

On a short trip to Martinique I was not very successful. I did find several live shells to the south of Vauclain; a short stretch of beach south of Trinité was full of Solen obliquus, and an unusual large shell, Thracia rugosa, which I did not know from the West Indies. Near L'Anse de L'Ane were big heaps of Arca zebra collected by fishermen to extract the animals for bait; many other shells were in these heaps.

I met a young Frenchman who started collecting four months ago. He is an expert diver, going down to 80 - 90 feet using tanks, and in this short period had amassed an absolutely amazing quantity of fine shells, probably over 100 beautiful Spondylus americanus (skillfully cleaned by his wife), large Cassis tuberosa, Strombus gallus, Strombus raninus and pugilis, very fine Charonia variegata including a fine rare mahogany-colored one, large Pugilina morio (one of the Melongenidae) living in mud, also Voluta musica -- but no cones. I noticed a large box with many fine shells going to Veronica Johns! He had tubs and cartons of shells waiting to be cleaned!

. . . GORDON USTICKE, Dec.'66

MALACOLOGICAL NOTES ON A TRIP TO THE U.S.S.R.

by Ernest Walton

Perhaps I shouldn't admit it here, but my wife and I did not make our trip to the Soviet Union last summer to collect shells. We went to see Russia. However, we did keep our eyes open for matters conchological as they came along.

While I hardly expected to see shells in Moscow, I did mention my interest in "rakushka" to our "Intourist" guide. She very graciously made me a present of some shells that she had randomly picked up. Two were from the Moskva River, Viviparus viviparus Linné, and a clam I have not yet identified. She also gave me a specimen of Rapana thomasiana Cr. which she told me came from Butumi on the Black Sea. I have made that tentative identification on the basis of a specimen I saw in Leningrad. Others have since questioned the origin of the shell, claiming that it was a Pacific species. However, since our guide was a very charming young lady and the nay-sayers merely scientists, I naturally prefer to accept the identification made by our guide. *

Our first opportunity to collect shells came in Novgorod. On a trip to Yuriew monastery, near Lake Ilmen, I came across a fresh water ditch which swarmed with Lymnaea stagnalis Linné. For the most part they were lazily floating at the surface of the water, bottom up. They measured about 2¼" in height and differed little from the specimens I later found in Sweden. An evening stroll along the Volkhov River turned up Lymnaea pergera and a river clam, the latter averaging about 2½" in length. In both cases, for lack of something better, I had to carry my find back in my hands. I was therefore somewhat concerned as to how the Russians would take to having some dirty, live mollusks carried into their clean new hotel, but all went well.

In Leningrad I requested the government tourist agency, "Intourist", to arrange a meeting with a Soviet shell collector for me. While I had been unable to arrange a similar meeting with a Soviet lawyer during my stay in the Soviet Union, this meeting was arranged overnight. The next day I was kindly received by the acting head of the Zoological Institute of the Academy of Sciences of the U.S.S.R. He spoke English well and, with an occasional assist from my guide and some pencil sketches, the conversation flowed easily. I questioned him about shell clubs in the Soviet Union, only to learn that while individuals follow that hobby, there appeared to be no organized shell clubs. I briefly described the activities of the New York Shell Club. We also compared the use of mollusks in the U.S.A. and the U.S.S.R. as food. In the U.S.S.R. evidently little, if any, use is made of them for food purposes. Edible clams apparently do not exist in large numbers and other mollusca are not eaten. Indeed, while I found fish dishes and, of course, caviar on hotel menus, I did not find any other sea food listed.

I was shown the section of the public exhibits devoted to mollusks. The Soviet specimens displayed there, part of a more comprehensive exhibit, did not include any indigenous specimens which were particularly exotic or otherwise striking in appearance. I was also shown one very unusual exhibit, a mammoth which had been found encased in Siberian ice. Though about 20,000 years old, the animal had been found completely preserved down to the last shaggy red hair. Indeed, its perfect state of preserva-

tion was attested to by wolves. They had chewed off half its trunk when the animal was left unguarded one night during excavation. Our visit ended with an exchange of gifts. I left a copy of Jacobson and Emerson, "Shells of the New York City Area" and received in turn a collection of Lake Baikal mollusca, including *Baicalia bithyniopsis* Lindh., *Baicalia kozotnewi gracilis* Koshov, *Valvata baicalensis* Gerstf., *Choanomphalus maacki* Gerstf., *Baicalia herderiana herderiana* Lindh., *Baicalia ciliata* Bybowski, *Baicalia plorii kobeltiana* Linh..

I had already been warned that the Baltic was very poor in mollusca and a visit to the Baltic shore line at Peterhof, Peter the Great's summer palace near Leningrad, turned up nothing but a few very fragile mussels which I could not identify immediately and which literally disintegrated in my hotel room that night. We also found some badly eroded *Viviparus malleatus* (?) and *viviparus* Linné on some mud flats.

A brief stay at Lake Trehörningen near Upsala, Sweden, yielded *Lymnaea stagnalis* Linné, *Lymnaea pergera* Müller, *Lymnaea glutinosa* Müller and *Theodoxia fluviatilis* Linné, the first three in great profusion. Another trip to the Baltic shore, this time near Gävle, Sweden, finished our stay in Europe. Again, we found not a single marine mollusk. This disappointment, however, was more than made up by the large number of trilobites, orthoceratites and other marine fossils which we found.

All in all, while the customs inspector in New York looked distinctly bored, we were more than pleased with the modest collection we brought home.

(At our February meeting the Waltons' modest collection was presented to Dr. Kenneth Boss for the study collection of the Museum of Comparative Zoology. -- Ed.) (*See NOTE on page 7.)

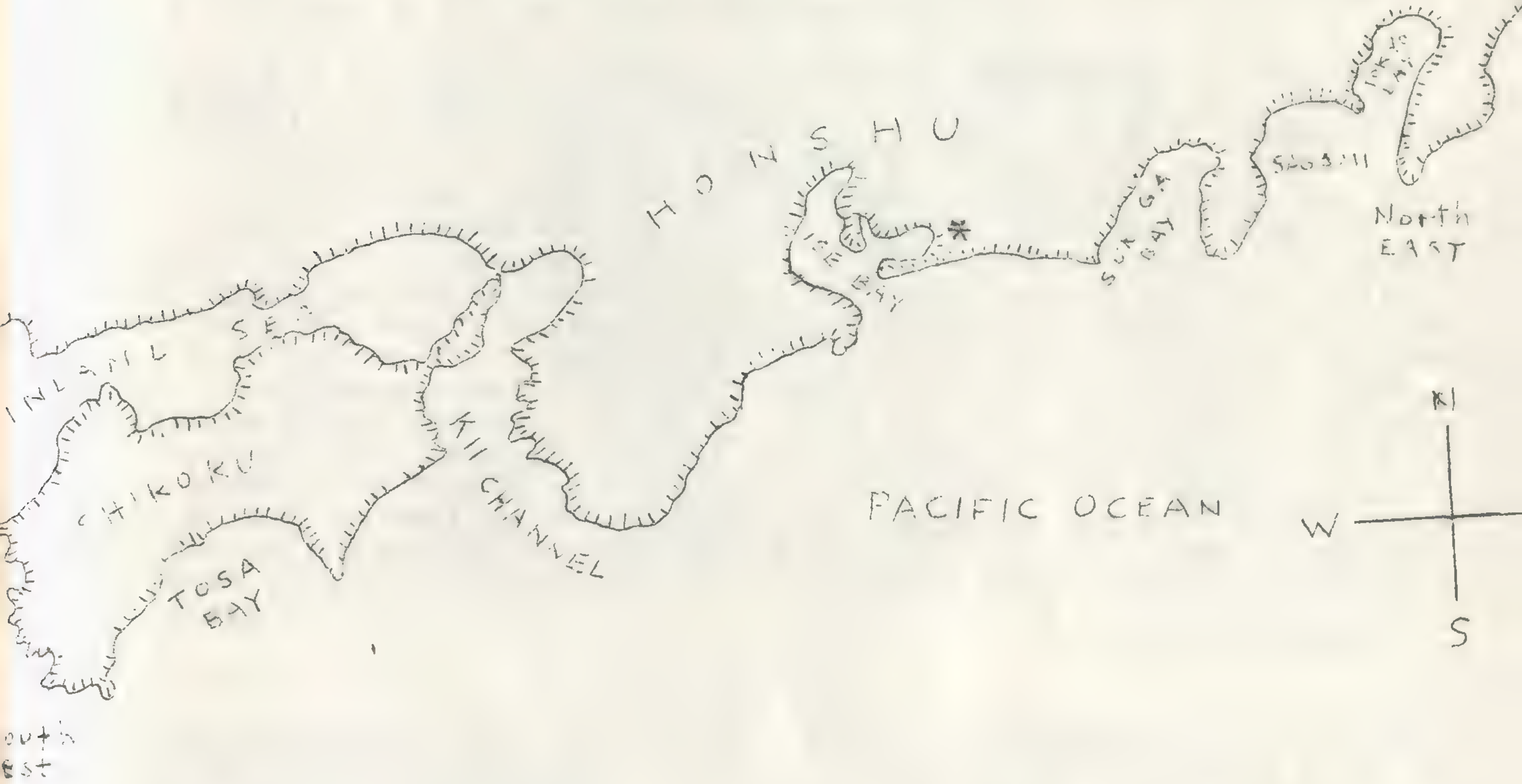
THE VALUE OF ZOOGEOGRAPHIC STUDIES

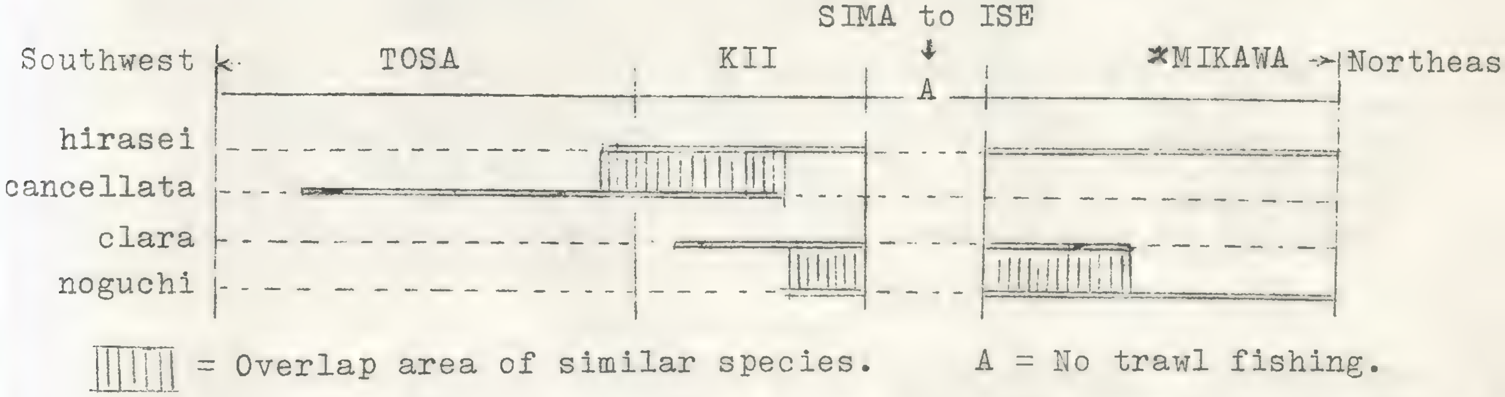
The need for precise knowledge regarding the geographical area covered by species of mollusks cannot be overemphasized, especially for the novice. This is of especial significance for zoogeographical studies aimed at separating closely allied species occupying more or less similar geographical areas. The black murex complex occurring on the west coast of Central and South America, from the Gulf of California to Ecuador, is a case in point. *Muricanthus nigritus* (Philippi), *ambiguus* (Reeve), and *radix* (Gmelin) may be three genetically distinct species occupying a north-south range, in that order. However, since apparently precise knowledge of areas of overlap are not known, no definite light can be cast on the possibility that relationships of species may very well have only subspecific or clinal significance. Thus these names may represent one species only, showing a change of form from the northern to the southern end of the range of distribution.

During a discussion (by letter) with Mr. Akibumi Teramachi on this particular black murex problem, he kindly furnished me with a graph illustrating distributional data for two pairs of allied species of Japanese Volutids. Knowledge pointing to confirmation of specific validity on the first pair, *Fulgoraria hirasei* (Sowerby) -- *cancellata* Kuroda and Habe, and the second pair, *Fulgoraria clara* (Sowerby) -- *noguchi* Hayashi, has been established with fair certainty. These species cover the area

from Tosa to Mikawa (see map of Japanese coastline under discussion). Exact information on distribution is lacking only for the area from Sima to Ise. The following is Mr. Teramachi's opinion:

He believes that the most exact way is to find the area of overlap of their distribution; and where this overlap has been found, and there are two distinguishable forms in the same place, they must then be considered different species; even though they very closely resemble each other. However, when intergrades (half-way forms) exist, then they must be considered only variations of the same species.





As can be ascertained from the graph, the geographical range of F. hirasei, starting at Mikawa, extends south to Kii where it overlaps the range of the more southerly cancellata. In the overlap area these allied species maintain themselves without evidence of intergrading. The same evidence is presented for clara and noguchi in their overlap areas.

NOTE: In reference to an observation made in the article on the shells of the Soviet Union, p. 4 of this issue. The author, Ernest Walton, in a letter to the editor, commented on the presence of Rapana thomasiana in the Black Sea, about which one of the editors had expressed some doubt. Mr. Walton referred to an item in these NOTES (No. 54, September, 1959, p. 3) in which Dr. Petelin is quoted as having said, "In the waters around Vladivostock there lives a beautiful species of red Rapana which attaches itself to the hulls of ships, is transported in such fashion to the Black Sea, there relinquishes its hold, drops off into the water, reproduces, and now there are great numbers of red Rapanas in the Black Sea." The article goes on to mention the case of Dreissenia, a bivalve, which has been thus transported.

Now, there is a difference between the bivalve Dreissenia and the gastropod Rapana. The former, a member of the Mytilidae, spins a byssus and thus easily attaches itself to any sunken hulk and gets transported for long distances. But how can a gastropod, without the help of a byssus, "attach itself" in a fashion strongly enough to undergo the tremendous distance between the far Pacific and the Black Sea, with all the changes of water temperature, etc.? It is most unlikely. Of course the eggs could become so attached, but even this offers so many difficulties that it remains a very doubtful possibility. Besides, the writer of this note has in his library a publication on the mollusks of Russian seas [K. O. Milashevitch, "Mollyuski Chernavo i Azovskavo Moryei (=Mollusks of the Black and Azov Seas) in Fauna Rossii", published by Zoological Museum of the Imperial Academy of Sciences, Petrograd, 1916.] in which a great many shells are mentioned, described, and figured, but no mention at all is made of any Rapana. Of course in the last fifty years Rapana may well have shown up in the Black Sea, but if indeed it is now found there it must have arrived in some manner other than advanced by Dr. Petelin.

. . . M. K. JACOBSON

TRYON TRY AGAIN

Thatcheria mirabilis, the fragile and beautiful "Wonder Shell" that appears as if it might have been turned on a lathe, was described by George Washington Tryon, Conservator of the Conchological Section, Academy of Natural Sciences of Philadelphia, in 1881, as follows:

"That the shell is a scalariform monstrosity cannot be doubted, but what may be its normal form is not so readily ascertained. I saw the single specimen from which the .. generic description was made, when in London in 1877 and was immediately convinced that the conical form, flattened shoulders and sinus were due to distorted growth. In the Annals of the Malacological Society of Belgium is figured a monstrosity of Strombus luhuanus, which I have copied, for comparison."

Chicago S.C. Newsletter Mar.'67

OPPORTUNITY: The John Germers have a second-hand jeweler's display case that they hope some sheller can use. It is 40" high, 47½" long, 24" deep, has plate glass, fluorescent light, storage area on bottom. Highest offer gets it. 653 Briarcliff Ave., Maywood, N.J. Phone: 201-843-8215.

SEE YOU APRIL 9th, AT THE PARTY!

NYSC NOTES NUMBER 131 APRIL 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

NEXT MEETING: MAY 7, 1967

Recording Sec'y
MILTON WERNER, Jr.

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
GEORGE RAEIHLE
7924 Ankener Avenue
Elmhurst, N. Y. 11373

Vice President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in
ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: MAY 7,*1967, at 2:00 P. M.

PROGRAM: TRIP TO TAIWAN (with color slides)
by Mrs. Orville Davis
RETURN TO THE SEA OF CORTEZ (with color slides)
by Dorothy Germer
REPORT ON FLORIDA SHELL SHOWS (with color slides)
by William E. Old

*NOTE THE EXCEPTION TO SCHEDULE: Our May 7th meeting will be held on the first Sunday of the month -- in order not to conflict with the Mothers' Day holiday that falls on the following Sunday.

SHELL - SOCIAL

A large THANK YOU to all who helped make our April 9th social meeting a success! There were so many donors -- of shells, books, cakes, time and work -- that we can't name them all, but must thank you collectively!

The meeting was opened by the mellow (?) tones of the trumpet shell, *Charonia tritonis*, surprising us into full attention. After the brief business meeting the afternoon was under way. Brisk business at the tables was suspended in favor of the auction. The material here had been swelled by many late donations and included more than the usual percentage of shells with full data, many with unusual locations -- Peru, Uruguay, South Africa as well as Florida, California, Philippines, Japan, Australia, etc....Neal Seamon's painting featuring *Tibia fusus* caught a mood often experienced in the field....Russell Jensen's exceptional film of live mollusks taken in Bermuda was an educational delight and aroused much interest in travel to those islands....Norma Hoag won the first raffle, choosing "American Seashells" by Abbott; Stanley Sokoloff won the second raffle, selecting "Shell Collecting, an Illustrated History" by Peter Dance....Table sales were resumed while refreshments and buffet were being set up....We were all ready for the generous buffet and delicious homemade cakes which followed.

It was a fine afternoon, and we wish that all of you could have attended!

CONCHESTRA, ANYONE?

Willie Antonowitz' presentation of "Listen to the Shells" (reported in NOTES No. 128) has drawn quite a bit of interest, and it was he who brought the drilled *Charonia* to the last meeting and, with Bella Kudatsky, sounded the notes that opened the meeting. Others present were intrigued with the idea of a shell orchestra (or "Conchestra"?). SO -- Mr. Antonowitz has some shells, drilled to produce different notes, and a nucleus of four members (Antonowitz, Kudatsky, Muller, Sokoloff) are inviting others, as many as are interested, to join the fun. Bella has volunteered to act as secretary to the musical group. You may get in touch with her by phone: (212) BO.3-9686, or by mail: Mrs. M. Kudatsky, 91-07 68th Avenue, Forest Hills, N. Y. 11375. Let's hear more of this!

PUBLICATIONS:

SOME TERTIARY MOLLUSKS FROM SOUTH FLORIDA AND THE CARIBBEAN

by Axel A. Olsson. 62 pages, 9 plates; published by Paleontological Research Institution, 109 Dearborn Place, Ithaca, New York 14850. March 10, 1967. $3.50 plus 10¢ postage.

We quote the announcement: "New molluscan species, with new genera, are described particularly from the Pinecrest Beds of Pinecrest and Kissimmee. The paper contains nine plates of excellent photographs of the new species and others including many showing the fluorescent pattern of the shells. An important work for the study of the famous fossils of South Florida."

* *

Collectors of Florida's fossil shells may be interested also in these two recent (1964) publications by the Paleontological Research Institution:

EXPLORATIONS ON THE WEST COAST OF FLORIDA AND IN THE OKEECHOBEE WILDERNESS, by Angelo Heilprin. (Printed originally in the Transactions of the Wagner Free Institute of Science, 1887) 134 pages, 19 plates, $4.00.

SOME NEOGENE MOLLUSCA FROM FLORIDA AND THE CAROLINAS, by Axel A. Olsson and Richard E. Petit. (Bulletins of American Paleontology, v. 47, No. 217) 69 pages, 8 plates. $2.35. (Postpaid.) (See address above.)

ILLUSTRATIONS TO "CATALOGUE OF THE COLLECTION OF MAZATLAN SHELLS" BY PHILIP P. CARPENTER

by Doris C. Brann. 116 pages, 60 plates. A special publication of the Paleontological Research Institution, 1966. $8.00 postpaid.

We quote the announcement: "The living shells of Mazatlan, West Mexico, illustrated by 998 figures on 60 plates. The original drawings of the 225 new species described by Carpenter (1855-1857) at last published."

The following item is reprinted from the Chicago Shell Club Newsletter of April, 1967:

BERMUDAN MOLLUSCAN CHANGES

Dr. Lewis recommends the following to interested Club members:

"Molluscan Faunal Changes Around Bermuda", by R. Tucker Abbott and Russell Jensen, Science 155: 687-688, February 10, 1967, an Abstract:

"The recent appearance of large populations of certain adult marine mollusks in Bermuda shallows, un-reported in previous surveys, suggests that an invasion is taking place, probably from Florida or the Bahamas, or from both. 'Newcomers' grow to sizes larger than any known elsewhere, suggesting that the characteristically large sizes of some species in Bermuda reflect environmental rather than genetic causes."

* *

(In "Shelling in Hawaii", NOTES No. 129, p. 7, Neal Seamon remarked on the "giantism" among some Indo-Pacific species found there, indicating that this is attributed to the different ecological and temperature factors of the Hawaiian area. --Ed.)

REMARKS ON A RARE SHELL IN THE NEW YORK AREA

by Morris K. Jacobson

In an earlier number of this periodical (No. 75, October 1961, p. 5, 6) we mentioned the tiny bivalve Crassinella mactracea Linsley (misspelled "Lindsley" in the article referred to) which various authors reported as "common" in our area, but which we had never found nor had heard of it being found by any of our club members. In the mail recently we received a masterly study of the genus by Dr. Harold W. Harry called "Studies on bivalve molluscs of the genus Crassinella in the northwestern Gulf of Mexico", (Publ. Institute of Marine Science, Texas, vol. 11, pp. 65-89, 17 figures, 1 map). The anatomy, ecology, and systematics are thoroughly studied and all problems of nomenclature alluded to in our 1961 discussion are lucidly explained.

Of greatest interest to us are the following:

(1) The species in this area is really Crassinella lunulata Conrad, C. mactracea Linsley being a synonym. The supposed difference between the two forms is that mactracea is rather heavily ridged, whereas lunulata is relatively smooth. However, Dr. Harry found that both varieties intergrade clearly and hence concluded that there is only one species involved to be known by the earlier name lunulata Conrad 1834, rather than the later mactracea Linsley 1845.

(2) Dr. Harry concludes on the basis of his own experiences as well as published material that Crassinella is a very rare "beach" shell. He writes, "Generally it lives on a bottom of coarser particles and seems to occur in small colonies. It inhabits only depths below low tide throughout most of its range, but dead shells occasionally may be found on beaches....In nearly every sample there is evidence of drilled shells." (p. 82) It ranges from Cape Cod to the Gulf of Mexico and has been reported at depths from one to 287 fathoms. Dr. Harry's studies were based upon specimens taken in Galveston Bay, Texas, at from one to 42 fathoms.

(3) Although nine names have been given to the species of this genus on the East Coast, only lunulata Conrad and martinicensis are recognized as valid. C. guadalupensis d'Orbigny, mentioned by Warmke and Abbott (Caribbean Seashells, p. 174, pl. 35, fig. m), is considered to be a synonym of lunulata.

This excellent work also contains interesting discussions of the anatomy, pigments, behavior, and ecology of the two species. In addition, there is a chapter on the parasites infecting them and a study of size variations.

Now that we have learned so much about the little bivalve, we'd certainly like to collect at least one live -- or even dead -- specimen.

SQUIDS

Recommended reading: "Squids: Jet-powered Torpedoes of the Deep", by Gilbert L. Voss, Ph.D., Institute of Marine Science, University of Miami. Illustrations in color by National Geographic photographer Robert F. Sisson. NATIONAL GEOGRAPHIC for March, 1967, pp. 386-411.

SHELL-OF-THE-MONTH, March 1967

by M. C. Fuldner

Cypraea zebra Linné, form Vallei Jaume and Borro 1946.
A light orange form of measled cowrie.

An introductory word as to pronunciation and languages: I acquired with great difficulty in high school and college a fairly good knowledge of Classical Latin and its pronunciation. In using this Latin in law school I referred to the writ of Fieri facias and was immediately informed that no one would understand me unless I said Firery Fasious. So I unlearned Classical Latin and learned Legal Latin. Later in life for literary purposes I returned to Classical Latin and then came to the New York Shell Club, only to find that Conchological English Latin was used. I was about to unlearn my Classical Latin again for this new language when I heard an officer of the club, whom I believe to be of Greek origin and who shall remain nameless, refer to Australia as Austrahlia. I thereupon decided that rather than learn Conchological English Latin for the shells and Greek-English for the countries from which they came, I would remain with Classical Latin and English English with some American English thrown in here and there.

* * *

One lovely sunny day in August, 1952, I was strolling along the beach at Dania, Florida, clad in my wild-colored cabana shorts. This was in my early carefree shell collecting days when all I was looking for was beautiful shells and had never heard of Mytilus although I had collected and eaten them for years.

I am a lawyer by profession and an artist by avocation and shells attract me by their color, form and beauty....The day was windy and the rollers were coming in rather high. Suddenly I spotted a beautiful cowrie rolling in the surf, but could not catch it as it would roll back into the ocean as I grabbed for it. This went on for some time and I was madly jumping back and forth, up and down, grabbing for the shell and missing it. Looking back on my antics at the time reminded me of a war dance executed by a Fiji chief which I had witnessed some years earlier in Suva while on a world cruise.

While engaged in this occupation some people passed, giving me a wide berth but I could not help overhearing some of the remarks, such as, "He seemed fairly normal when we talked to him at the beginning of the beach!" and, "Well, the stuff they drink these days, combined with the hot sun, etc."

But I was determined to capture the cowrie, and finally pounced on it and caught it. I had found several cowries on other occasions but none of this beautiful orange color.

I continued my stroll along the beach and met another shell collector. He asked me about my luck and I showed him the orange cowrie, asking if he had ever seen one like it. He said "Yes", he had "just found several of them on the same beach". Of course he did not show me even one of the several specimens and it was then that I learned that even shell collectors, like fishermen, will perhaps stretch the truth.

Three years later my troubles began. I bought Abbott's "American Seashells" and became enmeshed in the hopeless task of attempting to iden-

tify and classify shells. I looked to identify my orange cowrie and had beginner's luck! On page 180 under Cypraea zebra Linné, Measled Cowrie, was the following: "A light orange form, probably due to being buried in sand for some time, was described from Cuba."

On May 15, 1955, I wrote to Dr. Tucker Abbott about this shell and he replied, "It is still a puzzle to me whether this is a bona fide species, or just an ecologic form".

Since then, Bill Old has shown me some specimens from the Museum's collection, but none as beautiful to me as the perfect 2¼" specimen which I found on that windy day at Dania Beach fifteen years ago.

MEXICO, ANYONE ??

by Dot Myhre

I have been asked for information about travel and conditions in Mexico, so here it is:

A trip to Mexico, especially for shelling, could be compared with a sojourn on an island, as far as provisions are concerned, but there are certain formalities that must be taken care of first. It is necessary for U. S. citizens to have PROOF OF CITIZENSHIP such as: a photostat copy of birth certificate, or voter's registration card, or affidavit. Passports are not required for a 30-day stay. However, naturalized citizens MUST carry naturalization papers or a U. S. passport.

Tourist cards may be obtained from any Mexican Government Tourist or Consular Office at the official points of entry into Mexico. These cards are free.

Minors (under 21) traveling with friends must present a notarized letter in duplicate signed by both parents or guardians, authorizing them to make the trip.

ALL tourists must have evidence of a recent (3 year) SMALLPOX VACCINATION. The information should be recorded on an International Certificate of Inoculation and Vaccination.

CAR and/or TRAILER PERMITS must be obtained from the Mexican Customs Office. No official government charge.

MEXICAN CAR INSURANCE is not required but it is STRONGLY URGED that it be obtained. It should include full coverage: property damage and public liability with a reliable Mexican insurance company. In case of an accident one could be in a lot of trouble without it. Usually the driver and vehicle are held (guilty or not) until payment of damages or claims.

Dogs and other pets may be taken into Mexico if they have a veterinarian's certificate statine that the pets are in good health. Pets, also, MUST be accompanied by a certificate of inoculations against RABIES, given within the past 6 months. Our dog and protector, "Foxie", has made several trips with us.

Keep all the above valuable papers in a safe and handy place. It depends on how far one goes into Mexico as to how often one may be asked to show these papers.

Get maps of where you intend to go. A Spanish-English dictionary could

be of help in some places, but in the larger cities one can usually find someone who speaks English! *

An extra set of keys to your car or vehicle may be a wise precaution. Bill and I had quite a time when we lost ours -- but that is another story!

Night driving is NOT advisable as cattle (baca) roam freely. Remember when? Be particularly cautious when approaching the bridges marked "PUENTE ANGOSTO" (Narrow Bridge). The first driver to flick his headlights has the right-of-way. The other must pull to the side of the road, allowing the first to proceed across the bridge.

Have a checklist of provisions necessary for motoring through the country. The fewer cities you visit, the more provisions you'll need to stock:

WATER is a MOST IMPORTANT item! Take more than you think you may need. Very few places have water fit to drink. Halazone tablets may be used to disinfect water, if it should become necessary. It might be wise to ask your doctor for a prescription to combat dysentery.

Bakery goods, bottled sodas and juices, fruits and vegetables that can be peeled are safe. Canned goods can be bought in cities. Always be careful about food and drinks!

To conserve water, sea water can be used for dishes and clothes. We have found that "Trill" liquid makes good suds and does not leave clothes stiff.

Of course, take lots of newspaper, paper towels, cups, dishes, and paper bags. Toilet tissue makes excellent wrapping to protect your shells for their travel back home, too. Alcohol for your small shells.

Use your empty coffee cans for boiling shells.** These cans are, also, excellent for storing glass or plastic containers that could break or split. Some of the roads are rough. Some are all right but off the beaten path they are terrible! And that is probably where you would want to go -- like us.

Mexican money is based on the decimal system. A peso (pay-so) is equal to about 8 cents in U. S. money. There are 100 centavos in 1 peso. It is a good idea to get some of your money changed into pesos before you enter Mexico, to make it easier in the small towns or scattered service stations. After a price has been quoted in Mexican money, DON'T be an "ugly American" and ask "How much is that in real money?"

A few weeks before taking off for Mexico you had better check with your Automobile Club or the Mexican Government Consular Office in the event there are new rules and regulations.

The Mexican people are very friendly and polite. I hope that all who intend going to "collect" will also be friendly and polite!

Happy Shelling! Feliz viaje!

---

*(Don't forget Klines' Glossary -- NOTES No. 123.)

**(Be careful not to leave the shells in the can a minute longer than is necessary. Rust is quickly acquired, never removed.)

(Reports on shelling in Mexico in NOTES No. 109, by Germer, and No. 118, by Taxson.)

- - - Ed.

CONCERNING CAPTIVE CHITONS

by Dorothy Raeihle

The first specimen of *Chaetopleura apiculata* Say that we'd ever had in the aquarium (and on which we reported in NOTES No^s. 114, 121 & 125) lived in captivity from June 26, 1965 to January 15, 1967. To summarize, this specimen from Gardiners Bay fed on the algae from pebbles collected intertidally and grew during the year and a half from 18 mm. to 26 mm. in length, as measured while it was resting on the wall of the aquarium. But measured dry, after curing in glycerin as had been requested, the contracted specimen measures only 20 mm. long in spite of care in attempting to keep it extended. (It is now in the collection of Dorothy Germer.) The mounted radula measures 8 mm. in length and 1 mm. at its widest, upper half of the ribbon. It is always interesting to observe the longitudinal lines, one on either side of center, formed by the dark, "iron-clad", lateral "grazing teeth" of each row. (See NOTES No. 107)

Chitons are herbivorous, but on one occasion I watched through a magnifying glass while this particular *Chaetopleura* ate protein. It ate several egg cases of *Prunum apicinum* that had been deposited on the sidewall of the aquarium, rasping through the egg case, then breaking and eating the egg and every bit of the case as well. Because of the lateral movement necessary for the chiton to center in on the egg cases I don't think this was an 'accidental' ingestion by the grazing animal.

In this connection, I have seen captive *Ischnochiton floridanus* Pilsbry feed on the meat of *Mytilus edulis*. Not often -- it was over two years before I could duplicate the observation. (Generally these mollusks are most active during the night -- an inconvenient time for snail watching.) It was in September of 1964, after some months of suspicioning, that I saw an *I. floridanus* come from the underside of a stone, reach into a mussel valve, drag mussel meat out of the valve and retreat with it back under the stone. This month I watched another specimen of *I. floridanus* partially emerge from under a stone and feed on the meat of *M. edulis*, feeding for about a half hour before pulling the *Mytilus* valve close to the stone, apparently in an attempt to take the food entirely under.

The dragging of food under a stone by *I. floridanus* had been observed on other occasions with *Ulva* (the sea lettuce) and with small pieces of algae-covered shell. It was accomplished by the Chiton clamping its very forward end on the food and then simply backing up. This behavior was not observed in captive specimens of either *Acanthopleura granulata* or *Chaetopleura apiculata*.

The *Ischnochiton floridanus* at present in the aquarium were collected last November from a rocky area at Crawl Key, in the Florida Keys. The species seems to do well in the aerated aquarium -- one specimen lived for two years, and grew a bit during that time.

It is in my memory that I have read of a Pacific coast chiton which also has been observed to feed on other than vegetation. I was browsing in someone else's library; the reference would be most welcome if I could obtain it. (Was it in the "Veliger"?)

NYSC NOTES NUMBER 132 MAY 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
GEORGE RAEIHLE
7924 Ankener Avenue
Elmhurst, N. Y. 11373

Recording Sec'y
MILTON WERNER, Jr.

Historian
NICK KATSARAS

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 11th, 1967, at 2:00 P. M.

PROGRAM: SHELL COLLECTING -- SOUTH AFRICA'S "CAPE" AND "WILD COAST" (with color slides)
By Waverley and Francis Harmon

AN EXHIBIT OF SOUTH AFRICAN SHELLS
Collected by Waverley and Francis Harmon

SHELL-OF-THE-MONTH -- CONUS MILNEEDWARDSI
By William E. Old

ANNUAL ELECTIONS: BUSINESS MEETING

ANNUAL ELECTIONS: The nominating committee (which is made up of past presidents) is considering a slate for your approval. Anyone wishing to submit a nomination should send it to the committee's chairman, Mr. M. K. Jacobson, 455 Beach 139th St., Rockaway Beach, New York 11694.

ANNUAL FIELD TRIP & OUTING SATURDAY, JUNE 3rd

At our May meeting it was voted to hold our annual field trip and outing on Saturday, June 3rd, at Orient Beach State Park, when there will be a low tide of 0.3 at 1:40 P. M.

Bring your lunch and thermos; there is a picnic grove and fireplaces. Bring dry socks, sneakers or boots (the beach is pebbly), your favorite shelling tool, a pail and/or containers.

DIRECTIONS: Orient Beach State Park is located at the northeastern tip of Long Island and faces Gardiners Bay. (Check your map.) The Long Island State Parkway System to Riverhead; at Riverhead pick up New York State Route 25 north and east to Orient Beach State Park. The entrance to the park will be on your right. If you arrive at the ferry landing you have gone too far -- turn around and go back one mile.

As there is but one parking lot and one picnic grove you'll have no trouble locating other members. Come early!

Veronica Johns and Mike Werner have volunteered to act as "clearinghouse" for phone calls from (1) those who have room in their cars for an additional passenger or two, and (2) those wanting transportation. You may leave messages with Veronica Johns at "Seashells Unlimited" LE.2-8690, or Mike Werner (evenings only) at AP.7-2076.

MIAMI MALACOLOGICAL SOCIETY:

April 28, 1967

To the New York Shell Club:

This letter is to introduce a newly formed group: "Miami Malacological Society".

Our primary function is to promote study of the various species of mol-

lusks, their lives and environments. Also, we hope to offer assistance to others by providing educational displays, information, etc., in this way to bring to public notice a little known but interesting group of animals. We are interested in conservation and preservation of areas where mollusks may breed and live successfully.

Our officers are listed below, and will welcome hearing from anyone who would like further information about us. Correspondence should be addressed to one of them as we are not affiliated with any other group in the area. Copy of our Rules and Code of Ethics* enclosed.

Sincerely,

Mrs. Ellen Crovo (Secretary)

PRESIDENT:
Lt. Col. Corinne E. Edwards, Box 691, Coconut Grove Sta., Miami, Fla. 33133

VICE PRESIDENT-SECRETARY:
Mrs. L. E. Crovo (Ellen), 2915 S.W. 102 Avenue, Miami, Florida 33165

TREASURER:
Mrs. E. W. Futch (Louise), 144 W. 32 Street, Hialeah, Florida 33031

EDITOR-HISTORIAN:
Mr. John A. Baker, Box 171, Biscayne Annex, Miami, Florida 33152

*(Excerpt) .. Do recognize that each living thing is linked to many others in nature's chain of life and will strive to maintain this balance of nature by word of mouth and any available expedient, as well as by our own example....We will not collect to sell....Will be prepared to make observations for scientific purposes and will, while collecting and observing, keep accurate data on everything pertinent, noting the area, number, condition, food, enemies and activities of the mollusks and marine life. Dependable and accurate information is vital if we are to assist students of malacology, scientists and scientific groups.

(We are happy to announce the formation of this society and look forward to hearing from them in the future. --Ed.)

AMERICAN MALACOLOGICAL UNION - 33rd ANNUAL MEETING

Dr. Leo G. Hertlein of the California Academy of Sciences will preside, as AMU president, at the 33rd annual meeting to be held at Ottawa July 31 - August 4, 1967, under the sponsorship of the National Museum of Canada. Sessions will be held at both the Museum and Carleton University; housing and meals at the Russell Dormitory and University Cafeteria, Carleton University, Bronson Avenue, Ottawa. Housing available from Sunday, July 30, through Saturday, August 5th, @$6.00 single with shared bath, $5.00 per person double. Those wishing reservations should request them immediately -- by air mail -- as we are not sure of the deadline for reservations. Write to Dr. Arthur H. Clarke, National Museum of Canada, Ottawa, Ontario, Canada.

In addition to the daily sessions of scientific papers, there will be informal evenings, a reception and banquet, an all day field trip to Fitzroy Harbour, and a special arrangement for Saturday: a reserved bus to transport those wishing to visit Expo '67 in Montreal and return to Ottawa! All members of the AMU and their friends are urged to come!

FLORIDA SHELL SHOWS

by Bill Old

In March I covered the shell show circuit. Since shows are usually held in February and March, two (or even three) are often held concurrently. Each club has its own set of rules and categories. Some clubs own cases and these are made available two weeks before the show is to be set up. Otherwise, exhibitors provide their own cases. At each show that I visited there were approximately 70 entries submitted by about 35 participants.

Some five thousand people visited the 30th Annual Sanibel Shell Fair, which was held at the Community House on Sanibel Island March 2nd thru March 4th. The judges were Dr. William Heard of Florida State University and myself. There were 19 categories for shells in the collectors' division, with a separate division for dealers' entries. Shellcraft was also placed in a separate category, and had special judges. Attractively arranged outside the Community House were tanks of live specimens, an art show, Audubon Society exhibits, and sales booth.

The youngest exhibitor was six, and the eldest, ninety-four. Ribbons were awarded in each category, and five trophies were furnished by the Sanibel Community Association. The Academy of Natural Sciences Award went to Mr. and Mrs. Riley Black of Fort Myers. The local "Shell of the Show" was an unusually striped clam labeled as Mercenaria notata. The world-wide "Shell of the Show" was a specimen of Mikadotrochus amabilis, a species of Pleurotomarid from the Gulf of Mexico, recently described by Ted Bayer of the University of Miami.

The Broward County Shell Club held its third show at Jordan Marsh Department Store in Fort Lauderdale. Judges were Mrs. Germaine Warmke, Mr. Harvey Meyer of Captiva, and myself. Mrs. Maude Nickerson Meyer served as a shellcraft judge. This show was held March 9th thru March 11th.

The American Museum of Natural History Award went to the Don Franks family of Miami Springs for their exhibit of eleven cases of self-collected Florida gastropods. The "Shell of the Show" was Flynn Ford's live-taken specimen of Cypraea rosselli, which reposed next to last year's winner, Cypraea marginata, in Flynn's case. The "Florida Shell of the Show" was a gigantic specimen of Melongena corona that belonged to Don Franks -- it measured 190 mm.!

Two weeks later I was back on the west coast of Florida to visit the St. Petersburg Shell Club's 20th annual show, held at the Treasure Island Community Center from March 23rd thru March 27th. The judges were Major George Robinson, Mrs. Helen Oberle of Sarasota, and myself. There were 14 categories, including shellcraft. This show is noted for the high calibre of its exhibits. This year there were many unusual displays, such as a shell clock (that worked), map of the United States with shells from each state, shells and their egg cases, a study of the Chambered Nautilus, marine invertebrates, and many fine shell exhibits.

The Smithsonian Award went to Mrs. Miriam Shriner of Sanibel for her "Comparative Study of Recent and Fossil Florida Shells". The "Shell of the Show" was a magnificent specimen of Spondylus varians that belonged to Roger Dunn of Gulfport.

The dark horse among the shows that I visited was that held in Key West

on April 1st and 2nd. I was quoted in the "Key West Citizen" as follows: "This is astonishing for a first-time effort. I doubt if our large New York Shell Club could have assembled such a large collection of fine specimens for our first attempt." The other judges were Mrs. Ruth Merrill and Dr. John Fredericks, both of Key West.

As an inducement to "get the conchs* out of their shells" all categories were duplicated: Division II for those with previous experience, and Division I for first-time exhibitors. The Chamber of Commerce sponsored the shell show. Memberships in the proposed shell club were sold. Remember, all of this was achieved before a local shell club was formed -- believe it or not!

In summing up, I can think of little that could be done to improve the shows. Perhaps a little more attention could be given to labeling. At St. Petersburg, listings of winners were mimeographed and distributed soon after the ribbons had been awarded -- a good idea.

Since the judges are usually available for questioning during the shows, I recall two questions that were rather frequently asked: "When do they have shell shows in New York?" and, "Why don't they have shell shows in New York?"

*(In this reference "conch" denotes a citizen of Key West. Bill Old was honored by the Chamber of Commerce and at our May 7th meeting proudly displayed a scroll designating him an "Honorary Conch". Wylda Stephens of Key West writes that now the American Museum of Natural History has among its shells a 6'4" conch -- which must indeed be a record! --Ed.)

SHELL SHOW SCHEDULE

The Jacksonville Shell Club's Shell Show will be held at the Jacksonville Beach Community Center July 28, 29 and 30, 1967. Those wishing details should write to Mrs. Frank K. Macedonia, 2434 Gaillardia Road West, Jacksonville, Florida.

RE: SHELLING IN TAIWAN

At our May meeting Mrs. Orville Davis gave a delightful account of her experiences in acquiring shells while on a visit to her daughter in Taiwan. She told us that she had first tried the military beaches, but found almost nothing. Later she learned that this was because the Taiwanese regularly comb the beaches for live mollusks for food. She had this strikingly demonstrated when she met a woman on the beach who was also shelling. Ceriths? The woman expertly sucked out the soft parts, spit out the operculum, swallowed, and with a large smile indicated "delicious".

But Mrs. Davis' "dry shelling" was most productive. With the help of the houseboy, who was guide and interpreter, she visited fishermen who dealt in shells brought in by net and dredge. Her own good will was reciprocated two-fold and she obtained a fabulous assortment of shells at prices that to us were "peanuts". She added that the real cost of her shells was in the hours and hours of work spent in cleaning them, as the mollusks brought in from deeper waters had not been used for food and

varied in condition from dying to an advanced state of decomposition. She told how her cleaning problems were added to both by small insects and the large boxer dog who enthusiastically dug up every problem shell she had buried in the sandy soil of a flower bed. But the color slides of the beautiful shells proved that her work was worth the effort.

We hope to hear more from Mrs. Davis.

WINTERTIME SHELLING IN THE NEW YORK CITY AREA

As wintertime here is just too darn cold for a field trip, we could very well leave a blank space to describe "Wintertime Shelling in the New York City Area". However, as the mollusks in our aquariums need food and changes of water we do make an occasional trip to the beach, and collect these items as quickly as possible before running for the warmth of the car. During the cold months the only mollusks that are really obvious on the shore of Long Island Sound at Bayville are the mud snails, Nassarius obsoletus. Even the periwinkles take shelter -- on one trip, after some searching, we found them low on the sunny side of a rock, lined up at water level. Occasionally we find in a tide pool a stranded live specimen of Petricola pholadiformis or a dying Nassarius trivittatus.

We usually go to Jones Beach Fishing Station when we need water, as we can park close to the bulkhead by the piers along State Channel. If the tide is sufficiently low I trek down the cove to a pebbly area for algae. Here the N. obsoletus and the Littorina -- littorea, saxatilis, and obtusata, are low under the rocks, and tiny ones clinging in the algae are sometimes collected inadvertently.

At Rockaway Beach, on the ocean, the gulls have usually taken care of any stranded Spisula or Polinices. We need to be there only a few minutes at low tide to collect from the jetties a good supply of mussels for the carnivores and fine seaweed for the Strombus and Turbo. We found no other molluscan species among these clumps of Mytilus edulis. Among these mussels collected at Rockaway, January through April, were all sizes down to minute specimens. These very tiny ones were discovered when I became curious about the "fine white sand" that sifted from a clump collected in January. Under 30X magnification I saw that the fine "sand" was made up of hundreds of translucent new mussels, so small that the umbones were centrally located! (NOW I learn this! A few years ago I was bewailing the fact that food was not available in wintertime for my newly hatched carnivores! This year -- no newly hatched carnivores.)

A clump of mussels taken in mid-May from a jetty at Manhattan Beach, in Brooklyn at Rockaway Inlet, was notable for the absence of worms and anemones, and the little shrimp-like amphipods that are so numerous at every other station. I found no mussels as tiny as above described, but many in the next growth stage of "oval". However, there were 7 or 8 quite small gastropods, discovered because one crawled up the side of the container, that I think are Littorina, perhaps obtusata.

Within each clump of mussels, from whatever station, there are a few of the tan, sometimes rayed, specimens that have been called Mytilus edulis pellucidus Pennant, but in reality seem to be but a color form of Mytilus edulis Linné.

. . . DOROTHY RAEIHLE

A NOTE ON THE GENERIC AFFINITIES AND SYNONOMY OF MUREX LONGICORNIS Dunker, 1864

by Anthony D'Attilio

Murex longicornis Dunker was described more than 100 years ago. Although otherwise unfamiliar with this species, in my personal library I have a copy of the monograph on the Muricinae by G. W. Tryon, in the "Manual of Conchology", published in 1880, in which this species is figured. From this I became familiar with *Murex longicornis* without ever having had an opportunity to examine a specimen. According to Dunker the species was said to come from Amboina -- which was an important port of call during the time of sailing vessels when the Spice Islands played such a great part in world trade. Many species described in the early days of conchology thus have Amboina cited as the locality, when, in fact, often this was merely a stopping-off port.

Less than twenty years after Dunker's description had been published, Löebbecke and Kobelt described unwittingly the same species! They had material at their disposal that had been trawled in 76 fathoms off the east coast of Australia. This species was credited to a manuscript name of Von Martens and was named *Murex recticornis*, and was thus the first synonym to appear.

From among shells trawled in forty fathoms, east of Caloundra, Queensland, T. Garrard, in 1961, described a new species of Muricidae, *Poirieria kurranula*. This was to become the second synonym of *Murex longicornis*. However, the locality cited by Garrard confirmed that of *M. recticornis* and the species properly called *M. longicornis* is now known to occur off southern Queensland. *Murex longicornis* is of rather simple growth, allied closely to *Murex* s.s. This is the group of trivaricate, simple spined *Murex*, including *M. triremis* Perry, *tribulus* Linné, and *troschelli* Lischke. *Murex longicornis* differs mainly in having fewer spines and a more recurved canal. See figure A.

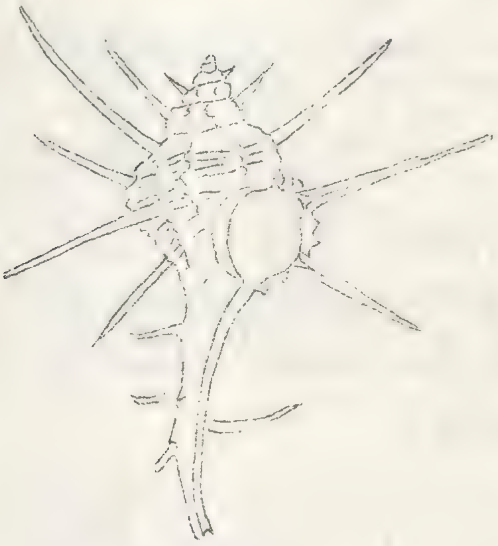


Figure A

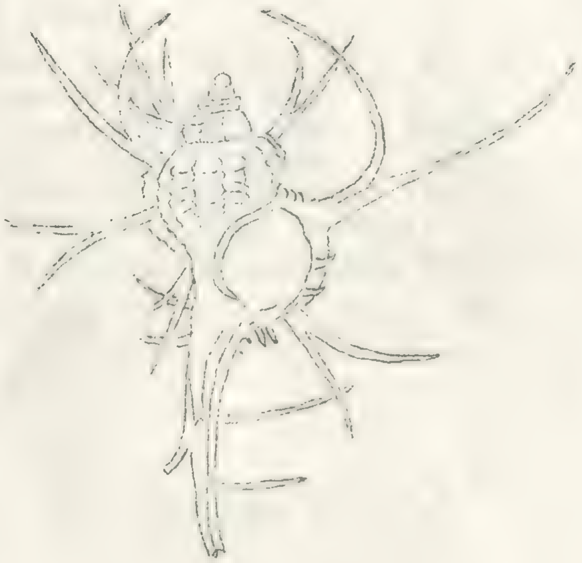


Figure B

(Note: In a recent paper by Harald Rehder on the names in the Portland catalogue now ascribed to Lightfoot, the earliest name for the Venus Comb, *Murex tenuispina* Lamarck, is not *Murex triremis* Perry but *Murex pecten* Lightfoot, 1786.)

Allied to *Murex longicornis* is *Murex cervicornis* Lamarck, 1822. This last species is found generally off the northeast to northwest coast of Australia. Fortunately this name has, apparently, no complicated synonymy. It is very similar in all respects but one to *Murex longicornis*. The spines are about equal in number in both species. However, the spines in *cervicornis* are uniquely bifurcated, one each of the bifurcated spines recurving sometimes backwards in a spectacular fashion. See figure B.

The following is a partial synonymy of the two species discussed above:

Murex longicornis Dunker W., 1864, Malak. Blatter, XI, pp. 99-102, Fünf neue Mollusken. (A description only, and first figured in the following paper.) *Murex longicornis* Dunker W., Novitates Conchologicae (1858 to 1870), 1865, pp. 64 to 65, plate 22, fig. 5 and 6, loc. Amboina. Tryon G. W., 1880, Manual of Conchology, Muricinae, p. 92, pl. 15, fig. 156, Amboina. Smith M., 1939, The Rock Shells, p. 7, No. 75, pl. 5, fig. 9, Amboina. (Note: The figure is incorrectly that of *Murex cervicornis* Lamarck.)

Murex recticornis Löebbecke T. and Kobelt W., (V. Martens, ms.), Jahrbucher der Deutsch. Malak. Gesell., Vol. 7, p. 81, pl. 14, fig. 3, east Australia, 76 fathoms.

Euphyllon recticornis (Martens), Cotton B. C., Family Muricidae, No. 8. Royal Society of South Australia, Malacological Section, Queensland.

Poirieria kurranula Garrard T., 1961, Journal of the Malacological Society of Australia, No. 5, p. 27-28, pl. 2, fig. 4.

MUREX CERVICORNIS Lamarck

Murex cervicornis Lamarck, 1822, Animaux Sans Vert., VII, p. 163. Kiener L. C., 1843, Icon. Coq. Viv., Genus *Murex*, Vol. "7", p. 32, pl. 20, fig. 2, Seas of New Holland. Reeve L. A., 1845, Conch. Iconica, *Murex*, species 66. Tryon G. W., 1880, Manual of Conch., Muricinae, p. 92, pl. 15, fig. 155, Indian Ocean, Torres Straits, Australia, 20-30 fathoms. Smith M., 1939, The Rock Shells, p. 6, no. 74, pl. 5, fig. 9 (misidentified as *Murex longicornis* Dunker).

Euphyllon cervicornis (Lamarck), Cotton B. C., 1956, Family Muricidae, No. 8, Royal Society of South Australia, Mal. Section, N. W. Australia, Queensland, N. Australia.

ACKNOWLEDGMENTS

My thanks are here expressed to my colleagues, Dr. William K. Emerson and Mr. William E. Old, for their invaluable help in checking the numerous citations in this paper, and also for their guidance in other ways.

NYSC NOTES NUMBER 133 JUNE-JULY-AUGUST 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, SEPTEMBER 10th, 1967, at 2:00 P. M.

PROGRAM: COLLECTING IN THE A-B-C ISLANDS (with color slides)
by Neal and Eva Seamon

THE LABIAL TOOTH IN THE MURICIDAE (with color slides)
by Anthony D'Attilio

SHELL-OF-THE-MONTH (to be announced)

ANNUAL ELECTIONS

At our annual election on June 11th the slate presented by the nominating committee was unanimously voted into office. Appreciation was expressed for the work done by President George Raeihle and the staff who served with him; welcome was given to incoming President Mansfield Fuldner, whose newly elected staff have, for the most part, served previously. The Club is very appreciative, also, that the non-elective post of Librarian will continue to be filled by Selma Feinberg.

President Fuldner and his wife were interested in shells for a long time before they "discovered" the New York Shell Club about ten years ago. We know that this enthusiasm will be evident in his administration.

Dear Friends:

I want to thank all of you for your cooperation which enabled me to discharge my presidential duties to your satisfaction.

It has been a pleasure to work with you, and I'm sure you'll give full support to your new president -- for only through an enthusiastic, active membership will the Club continue.

George Raeihle

ANNUAL FIELD TRIP AND OUTING

We had beautiful weather for our June 3rd field trip, when about thirty members met at Orient Beach State Park for shelling and sociability. Lunch was first on the agenda so that we would not be interrupted while working the outgoing tide (low was at 1:40 P. M.), then most of us headed for Long Beach Bay, on the northwestern side of the park.

Temperature was in the 70's, it was sunny, and the bay area was sheltered from the variable southeast breeze coming off Gardiner's Bay. Wading was comfortable and swimming and snorkeling were indulged in by a few members who had that extra spark of enthusiasm to keep them "warm" in the 58° water.

Though a few specimens of Busycon carica were found inshore, the work with snorkel and glass-bottomed buckets paid off: In waist deep water Mart Hulswit located a number of the whelks in grasses and selected a growth series; Angela Savino collected some medium-sized ones for her aquarium. We saw a number of live bay scallops, Aequipecten irradians, and many of their pretty single and double valves. Mart displayed a fresh double valve he had taken from a feeding Busycon -- just a thin

layer of the firmest part of the scallop's muscle still adhered to the shell.

To our knowledge, only one chiton was found: Mike Werner came out of the water with a big grin in spite of shaking with cold. (Someone remarked that it was a good thing his bones were tight or he would have sounded like castanets!) The chiton (*Chaetopleura apiculata* Say) was clinging to a pebble also occupied by a stack of five *Crepidula fornicata* and much fine weed. It was a dark tan, beautifully marked specimen, measuring about 17 mm.

In this back bay a majority of the *Nassarius obsoletus* and *Littorina littorea* were covered in various degrees with a black-brown, parasitic growth of the texture of cork. We peeled it from a couple of the *Littorinas* and there seemed to be only slight surface damage to the shells. *Mya arenaria* were in the shallows; *Crepidula fornicata* were carrying egg cases. Katherine Schmulowitz found a double valve of the jingle shell, *Anomia simplex*, that was the largest we'd ever seen -- it measures 2 3/16 inches across. Mary Russell found a live specimen that was only slightly smaller (2 inches?). A guest outdid his hostess by finding three live *Busycon canaliculatum* in Gardiner's Bay. It was interesting to note that in spite of all the live *Busycon* in the waters -- from juvenile to fully adult 7" -- none of their egg cases were in evidence.

No new species were reported this year, and no records (unless it be a size record for the *Anomia*). At 5 o'clock the sunshine was losing its warmth; we telephoned a restaurant in Greenport for dinner reservations for twenty. As we were loading pails and wet sneakers into the trunk of the car Mike Werner approached: "Will you board my chiton?" So now "Carlton", as Mike has named him (her), is active and feeding well along with two others of the same species taken at Peconic last September.

Dorothy Raeihle

(Listings of species found by NYSC members at Orient Beach State Park appear in NOTES Nos. 63, 73 & 93. -Ed.)

SOME THOUGHTS ON
COLLECTORS AND STUDENTS OF SHELLS OF THE NEW YORK S. C.

As a charter member of the New York Shell Club and as perhaps the only one who might claim a perfect attendance record, I may write at this time with a little affection and pride of my association with the members of the club for so many years.

The most interesting single experience that the club has given me is the opportunity to have met so many very nice people, many of whom have in time become real friends. Out of this has also come a knowledge of the varied vocations pursued by our member shell collectors. The club has been honored to have as members medical doctors, dentists and lawyers, housewives and businessmen, teachers and artists from all the graphic, plastic and performing arts, cobblers and seamen, and others from many and divers fields. I believe it can be said without further qualification that the primary interest which draws such a diversity of people together is their fascination with the great beauty of molluscan shells.

In the further development of their interest in shells, most collectors

find themselves satisfied by the accumulation of small or large collections of shells. These collections are sometimes restricted to the shells of a locality or to a limited number of shell families. We also have those collectors who want, or can see beauty in, only marine gastropods, or perhaps a bivalve family -- or even the local land shells of their own country or those of a tropical island.

For some collectors the instinct for accumulation sooner or later gives way to an expanded interest. This may include problems of classification, scientific observations in field collecting, and the study of various biological aspects of the living animal. Such types of expanded interest as are undertaken by collectors-turned-students may lead to fields occupied by trained specialists and professional workers. With the very rapid advancement of scientific knowledge such professional work has achieved a higher complexity than was thought possible by workers of an earlier generation. However, by the application of some real effort in learning, both by reading and in consultation with those specialists able and willing to teach, the advanced amateur may be able to make, on his level, some small contribution to the slowly growing body of knowledge in the field of malacology. The NYSC may take some pride that such a growth of interest may be shown to have taken place in our club.

It is obvious, then, that the continued aliveness of the NYSC is a result of the diversification of interest by the members in all aspects of shell collecting and study. It is true also that the members have shown an honest willingness to assist one another in various ways and to share experiences or knowledge regardless of the relative degree of interest.

Another observation may also be made. This is that the growth of the NYSC has not been impeded by the geographical placement of New York City in one of the poorest localities in the world for the finding of shells. Our marine molluscan fauna consists of a very few species found in large numbers. Our land shell fauna is even more inconspicuous by reason of the mostly minute size and being found, mostly with difficulty, in such localities as forest humus and under rotting logs or bark -- with the added hazard of surely encountering poison ivy if nothing else. On the credit side, for the student, is the presence in New York City of a great public institution of learning like the American Museum of Natural History with its extensive library and facilities for research. In addition, other great and similar institutions in Philadelphia, Washington and Cambridge are only a few hours away. For other collectors a vacation is within the means of most to localities rich in molluscan life, such as Florida, the Caribbean, or even California and Mexico.

I can, then, only wish that the New York Shell Club may continue to prosper and its members to grow in friendliness and cooperation.

Anthony D'Attilio

COMING EVENT

Nick Katsaras is planning an auction of fine shells for the 3rd Sunday in September. You will be notified of the place -- or inquire late in August of: Nick Katsaras, 479B South Washington Avenue, Bergenfield, New Jersey 07621.

CORRECTION, PLEASE ! !

Bella Kudatsky informs us that the mellow (?) tones that opened our April meeting emerged from Western Atlantic species rather than Indo-Pacific, as reported in our April NOTES No. 131. The shells used were the horse conch, Pleuroploca gigantea, and the pink conch, Strombus gigas, each drilled so that the attention-getting tones could be produced. I must confess that, hearing the notes from the next room, I couldn't tell the difference between the tones of Pleuroploca and Charonia anyway. This should encourage local talent to use local species.

* * * dr

Mr. Anthony D'Attilio acknowledges with regrets two errors of omission in the paper A NOTE ON THE GENERIC AFFINITIES AND SYNONYMY OF MUREX LONGICORNIS Dunker, 1864. These errors occur on page 7 of NYSC NOTES No. 132, May 1967: After Murex recticornis Loebbecke T. and Kobelt W., read 1880; after Euphyllon recticornis (Martens), Cotton B. C., read 1956.

BEHIND THE SCENES AT "SEASHELLS UNLIMITED":

Veronica Johns reports: "For those stubborn shells that are just impossible to clean internally, I have had very good results using an 'instant meat tenderizer', and it has not harmed a shell.

Pour the tenderizer into the aperture, fill the aperture with water, and let the shell stand overnight, spire down. Flush it out under the tap; repeat if necessary.

Papaya juice is the basic ingredient of the 'meat tenderizers'. I use '½ More Free' by McCormick, as it is the brand I have in my cupboard, but other brands may do as well."

CONVENTION SCHEDULES:

AMERICAN MALACOLOGICAL UNION - 33rd Annual Meeting, Ottawa, Canada, July 31 - August 4, 1967. Housing at Carleton University, where there may still be accommodations available. Inquire of Dr. Arthur H. Clarke, National Museum of Canada, Ottawa, Ontario, Canada.

AUSTRALIAN SHELL COLLECTORS CONVENTION, Yeppoon, Queensland, Australia, September 4 - 8, 1967. Accommodations: Motel, Guest House, Camp Site, Caravan Site. For registration form write (airmail) to the Hon. Secretary, Malacological Society of Australia, c/o The Australian Museum, College Street, Sydney, N. S. W., Australia.

(Australian Newsletter, Vol.15, No.57, Jan. 1967)

The MARINE BIOLOGICAL ASSOCIATION OF INDIA is holding a Symposium on Mollusca January 12-16, 1968, at Mandapam Camp, Ramnathpurum District, South India. All phases of studies on mollusks will be included. Anyone interested should write the Convener. I have agreed to serve on the Advisory Committee and am planning to attend.
-- Ralph W. Dexter, Kent State University, Kent, Ohio 44240.

(The NAUTILUS, Notes & News, Vol. 80, No. 4, April, 1967.)

DO YOU OWN AN ANTIQUARIAN PUBLICATION ON SHELLS?

I am preparing a paper to be read at the coming American Malacological Union Meeting in Ottawa, for which I urgently need the help and cooperation of my fellow New York Shell Club members. The title of my presentation is "A Proposal to Register with the A. M. U. All Antiquarian Shell Books, for the Purpose of Conserving and Tracing them for Future Generations of Shell Enthusiasts".

Certain practical problems inherent in the project become obvious after realistically pondering the proposal for a few minutes. Let me reassure you by saying that the first and most important phase of the registration encompasses only members of Shell Clubs in the U. S. and Canada that are affiliated with the A. M. U. When you narrow it down to those members who own shell literature published before 1870, the task becomes even less ominous.

As a pilot project that I will incorporate into my paper, I would like to begin with the New York Shell Club. I appeal, therefore, to every member who owns such literature to PLEASE drop me a card or a letter listing the data stipulated below. This includes periodicals, material published by institutions, government bulletins, auction notices, illustrations from broken-up volumes, etc., published before 1870. One result of this census will be of real use to the Club: a file card list which can be added to year by year, to be stored with the Club's library. To me, an immediate happy result will be that I will be armed with the enthusiastic response and concrete result of the NYSC pilot census when I make my proposal before the A. M. U.

This project is extremely important for the preservation of the literary heritage of our field of interest. If the registration of antiquarian conchological material with the A. M. U. does become a reality, we will be able to take pride in our involvement. So please help, by letting me itemize the treasures we collectively own, and by letting me use this list to inspire other clubs to do the same. It will be for the good of all people interested in shells, past, present, and future.

INSTRUCTIONS TO MEMBERS REPORTING OWNERSHIP OF ANTIQUARIAN SHELL LITERATURE PUBLISHED BEFORE 1870, FOR FILING & REGISTRATION WITH THE AMERICAN MALACOLOGICAL UNION:

Please give the following pertinent data about your material:

1. Title
2. Author
3. Publisher
4. Date and place of publication
5. Previous ownership, history, including dealers, as far back as known.
6. Source, if known, of fragmentary material.
7. Your name and address. (Address to appear only in master file; name and Shell Club affiliation may be published with your permission.)

Mail to: MART HULSWIT, 680 WEST END AVENUE, NEW YORK, N. Y. 10025, as soon as possible! The A. M. U. Meeting begins July 31st!

In the fall your material will be certified, stamped, coded, and assigned a number. It will then be able to be traced and identified by future workers and shell enthusiasts.

I thank you for your cooperation.

Mart Hulswit

ECOLOGY

by Marian Schroth

Ecology is defined by Webster as "biology dealing with the mutual relations between organisms and their environment". The word "ecology" has the same Greek root as "economics": "eco" means "a place to live". (Gr. oikos = a house. ∠Ed.) Ecology is a natural science that cuts across a number of other sciences -- physics, chemistry and geology as well as botany and zoology. The mutual relationships with which ecology deals can be extraordinarily complex, but this paper will merely attempt to set out a few basic ideas.

As in every science, ecology has a special vocabulary. This is not done to confuse the novice or to make things sound unduly weighty, but to set out clearly the special ideas and relationships with which the science deals. The ECOSYSTEM is the unit of the ecologist. It includes all the living and non-living things in a habitat -- rock, soil, air and water, as well as plants and animals. A HABITAT is the abode of a plant or animal, especially the particular location where it normally lives. As shell collectors we recognize that limpets are found living on rock or stones, not in mud, and that the mud snail, Nassarius obsoletus, is almost never found living on a rocky cliff. These are entirely different kinds of habitats, and the inhabitants are adapted to that particular environment. The ecologist looks at an ecosystem and observes both the environmental factors and the COMMUNITY of living organisms in their natural relationships. Although the community depends on the environmental factors, the community also affects the environment. Sometimes these changes are small or subtle; sometimes they are large and important -- as when man intentionally alters a habitat. Man alters habitats every time he drains a swamp or builds a dam or clears woodland for farming. (As an aside, man almost always alters his environment, even when he does not consciously set out to do so.)

One of the most important concepts in the study of ecology is that of TROPHIC LEVELS or feeding levels. Think of the ecosystem as a functioning machine, with the sun as the motor or engine of that machine. The sun provides energy in the form of light. However, green plants are the only form of life that can use light energy directly. Ecologists call the green plants PRIMARY PRODUCERS. They can take carbon from the carbon dioxide in the air, and hydrogen and oxygen from water, and through a process called photosynthesis ("putting together with light") use the sun's energy to produce a kind of sugar called glucose. They change some of the glucose into starch, and they can make other things like proteins by adding nitrogen and phosphorus and other materials taken from the environment. You can easily recognize grass and trees as primary producers, but there are others: the green scum of algae in a pond, mossy rocks in a stream, the seaweeds (marine algae) which come in many shades of brown and red as well as green, and a large portion of the plankton. Although many things are included in the term "plankton" -- single-celled animals, small jellyfish and tiny crustaceans called copepods, as well as the larvae of some mollusks and other animals -- perhaps 90% of the food in the ocean is provided by minute single-celled plants. Plankton has been called the "grass of the sea". Most of the other life in the sea derives nourishment from it, though often very indirectly.

After the primary producers, the next higher trophic level is that of the HERBIVORES. Although most herbivores are animals, such as cows or chickens, there are a few parasitic plants like mistletoe. A great many mollusks are herbivores, scraping algae off rocks as do the periwinkles, limpets and chitons, or eating the plants in your garden, like slugs and land snails such as Helix.

Above the herbivores are the CARNIVORES, the meat eaters, but in this case there may be two or three or more levels of carnivores eating each other. Although we divide things into categories for ease of study, nature does not divide things that neatly. It is difficult to find a neat place to put the pelecypods, the bivalve mollusks. They are filter or deposit feeders, and they will take almost anything that comes along, if it is small enough for them to digest. Some bivalves can filter out food particles as small as one micron (about 1/25,000 of an inch), and when you are dealing with such small things the distinction between herbivore and carnivore becomes meaningless. Some fungi and many parasites are meat eaters. Animals at each level are eaten by larger or stronger animals at a higher trophic level. The relationships are often complex. A sick carnivore may find himself the victim of an animal from the same trophic level. Man eats primary producers, herbivores and carnivores.

A diagram of an ecosystem would indicate that each higher trophic level must be smaller in terms of biomass (amount of living matter, not necessarily number of units) than the one below it. Each plant or animal uses up part of its food intake for metabolism, producing energy for activity and releasing heat. Only a portion of what it eats can be turned into tissues that can be eaten by others. A mathematically inclined scientist once estimated that 10,000 pounds of diatoms (microscopic plants) are eaten to make 1,000 pounds of copepods, and 1,000 pounds of copepods to produce 100 pounds of smelts. The 100 pounds of smelts, when eaten, give 10 pounds of mackerel which, as food, make 1 pound of tuna. This pound of tuna when eaten by a man will probably increase his body weight by only 1/10 of a pound! There must be larger numbers at the lower trophic levels, and higher rates of reproduction, because they must make not only enough tissue for the next higher trophic level but also produce enough offspring so that the trophic level itself can be maintained despite losses.

However, at all trophic levels there is some matter that is not consumed. This matter, and the energy and minerals contained in it, would be lost to the ecosystem if it were not for a fourth trophic level -- that of the DECOMPOSERS, the fungi and bacteria. They have the unique ability to reduce complex organic compounds, such as proteins, to simple non-organic compounds which the primary producers (green plants) can use to manufacture food. Without the activities of the decomposers, many minerals and other nutrients would be locked in a form that could not be used by living plants and animals.

Although mollusks are not decomposers, they can help the decomposers. Dr. Ruth Turner recently pointed out to the New York Shell Club that although man considers shipworms and their relatives to be pests, they are just part of the clean-up squad of the ocean. They bore not only into wharf pilings and wooden planks, but also into the logs and trees that are frequently swept into the ocean. By riddling them with holes, the shipworms and their relatives prepare them for the decomposers, who re-

duce them to usable units. Just think of all the driftwood one tide can leave on a beach, and you can imagine what a mess the ocean would be in a year or so without the decomposers!

With the energy from the sun, there is constant flow of matter through the ecosystem. Matter is used and re-used in a most efficient manner. Green plants use carbon dioxide from the air and give off excess oxygen. Animals use oxygen and give off carbon dioxide as one of the waste products of their metabolism. With the proper balance of plants and animals you can create a small ecosystem in a sealed gallon jar of pond or sea water. Each type of plant or animal contributes something to the ecosystem of which it is a part, and there usually is a fantastically large number of kinds of living things in a habitat, many of them too small for us to see with the naked eye. There are many predators and many types of prey. The ecologists talk of "food chains" and "food webs" and try to understand the predator and prey relationships. Most animals have a preferred type of food, but they have a degree of latitude so that they can survive the loss of one kind of food. The wide variety of plants and animals, and the web of food requirements, makes for stability within a community. The community continues even though one kind of plant or animal is destroyed.

My point here is that the mollusks you collect are only small parts of large communities of living things. They can be found in almost any climate, on land or in fresh water or in salt water. There are many different kinds of habitats, each with a different kind of community of living things. Even between high and low tide on a single beach there are differences in habitat. Littorina saxatilis (the rough or yellow periwinkle) and Littorina littorea (the common periwinkle) are both found between high and low tide. However, as L. saxatilis can live with less moisture, it is normally found living higher on the beach than L. littorea.

Like all animals, mollusks need both food and shelter. If you are looking for a particular family or species of mollusk, a knowledge of its ecology will help you to look in the more likely places: When I promised to collect local Lymnaeidae (a family of fresh water snails) for a friend at the University of Montana, it made life a lot easier to know that the Lymnaeidae are usually found in shallow water or in mud at the shore of a lake or stream.

In the ocean, fine sand is a difficult place for mollusks to live, because waves often shift the sand, and sand is a hard place to get firm footing, but many species are able to burrow in the sand and feed with only their siphons extended. Digging or fanning in a sandy area might bring unexpectedly fine results, uncovering several species. However, you are likely to find even more species in a sheltered bay that has grasses both for shelter and more food for the herbivores that feed the carnivores.

Looking for land snails is generally more painstaking than looking for marine or fresh water mollusks, but you learn to look in the more likely places -- under the bark of a dead tree or in decaying vegetation on the forest floor. Since the snails need moisture, you are not likely to find them in a sunny, exposed area. Unless you are particularly dedicated, you will not spend too much time looking for snails in a pine or spruce forest, as it provides an environment that is too acid for most snails and slugs.

When I go shelling, I try to look at the total environment, making mental notes in case I find the same type of habitat in the future. I find my interests broadening beyond conchology and malacology to all of nature. You can use ecological principles without being conscious that there is such a science, but I believe you will find your shelling more interesting, as well as more productive, if you go with a conscious awareness of habitat and the needs of different mollusks.

If you would like to delve more deeply into ecology, I recommend the following publications. Those of you who attend New York Shell Club meetings will be able to borrow them from the Club's library:

THE STORY OF ECOLOGY FOR AUDUBON JUNIORS: Text, leaders' guide and Audubon Ecology Chart. Obtainable from National Audubon Society, 1130 Fifth Avenue, New York, N. Y. 10028. Price $2.00 for the kit. (Although the pamphlet was written for "junior" high school children, it is a good first book for adults.)

THE WEB OF LIFE, by John H. Storer. Signet Science Library, 60¢. (A good introduction to ecology, but it refers mostly to land plants and animals.)

THE FOREST AND THE SEA, by Marston Bates. Signet Science Library, 60¢. (Goes into a little more detail than THE WEB OF LIFE and gives a little personal philosophy of the author. Tells more about the sea and notes parallels between tropical rain forests and tropical seas.)

THE SEASHORE, by C. M. Yonge. Atheneum Press, $1.95. (Discusses communities of living things between high and low tide on British shores. More advanced than the others but well worth the effort necessary to understand it.)

PUBLICATIONS:

VENOM APPARATUS AND GEOGRAPHICAL DISTRIBUTION OF CONUS GLORIAMARIS, a paper by R. Tucker Abbott. 8 pages, 2 photographic plates in black & white, 2 plates line drawings in black & white. A most interesting and up-to-date report on the "Glory of the Sea" that all cone collectors and most shell collectors will want in their libraries. Published as No.400 of NOTULAE NATURAE (a publication of The Academy of Natural Sciences of Philadelphia) and dated May 3rd, 1967. Available @ 50¢ per copy from the ANSP, 19th and The Parkway, Philadelphia, Pa. 19103.

A REVIEW OF THE GENUS VOLUTA AND THE DESCRIPTION OF A NEW SPECIES, by Axel A. Olsson. 20 pages, 4 plates, $1.35 postpaid. "Bulletins of American Paleontology" v. 49, No. 224, Nov. 19, 1965. Description of Caribbean living volutes with illustration of types of Linnaeus and Lamarck, new Voluta from Florida, and photos of fossil Volutes from Panama and Florida. (See address below:)

LINNAEAN OLIVES, by Axel A. Olsson and S. Peter Dance. 14 pages, one plate, 75¢ postpaid. "Bulletins of American Paleontology" v. 50, No. 227. Identification, discussion, and illustration of the types of Oliva porphyria, O. oliva, and Agaronia ispidula, all described by Linnaeus as Voluta. Available from Paleontological Research Institution, 109 Dearborn Place, Ithaca, New York 14850. Please enclose remittance with your order.

JUNE, 1967, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome these new members and bring you to date on address changes received since our January, 1967, Supplement to Roster.

(* denotes family membership)

NEW MEMBERS:

BRITZ, Mr. Steven J.	13 Plymouth Rd., Cherry Hill, N. J. 08034
CARROLL, Miss Barbara	10 Spencer Ave., Huntington Station, N.Y. 11746
CONOVER, Mrs. Hugh & son	54 Libby Avenue, Hicksville, N. Y. 11801
CULP, Mr. Derrin	55 Cooper Street, New York, N. Y. 10034
CULP, Mr. & Mrs. Robert	
DAVIS, Mrs. Orville	121 America, Orlando, Florida 32801
GARCIA-RAMOS, Mr. Manuel	218 West 16th St., Apt. 10, New York, N.Y. 10011
GOLOFF, Miss Barbara	4 North Tallahassee, Atlantic City, N. J. 08401
McGINNISS, Miss Barbara	355 East 72nd St., New York, N. Y. 10021
MORRIS, Mr. Morton	344 West 72nd St., New York, N. Y. 10023
NORTH, Mr. Max	299 Victoria St., Taree, N. S. W., Australia
PALACE, Mr. Jeffrey*	2031 Colonial Ave., Bronx, N. Y. 10461
PETTITT, Mr. Charles	c/o National Institute of Oceanography, Wormley, Godalming, Surrey, England
RUSSELL, Mr. & Mrs. Stanley	360 East 72nd St., New York, N. Y. 10021
SCHREIBER, Mr. William	29-35 201st St., Bayside, Queens, N. Y. 11360
TURNBULL, Mrs. Sandra*	c/o D'Attilio, 444 E. 82nd St., New York 10028

REINSTATED:

LA PORTE, Mr. & Mrs. Wm. S.	North Ocean Blvd., Delray Beach, Fla. 33444

CHANGES IN ADDRESS:

JAHNS, Miss Lillian	Box 238, Bowling Green Sta., New York, N.Y. 10004
MANDEL, Mr. Louis P.	9 Richfield St., Plainview, N. Y. 11803
MOSS, Mr. & Mrs. M. W.	542 Fourth Ave., Westwood, New Jersey 07675
NORDSTROM, Mr. L. G.	200 West 16th St., New York, N. Y. 10011
PASTERNACK, Dr. Richard	1224 Seminole Dr., Ft. Lauderdale, Fla. 33304
RIDGE, Mrs. William D.	35 Sanford St., St. Augustine, Fla. 32084
SNYDER, Mr. & Mrs. Martin A.	Ashwood Rd., Villanova, Pa. 19085
SPEERS, Mrs. Anne	Box 537, Sinton, Texas 78387
VAN RIPER, Dr. Mildred J.	609 Mayo St., Crystal Beach, Florida 33523
WILLINGHAM, Mr. Richard B.	5112 Lyons View Rd., Knoxville, Tenn. 37919

A CORRECTION:

On the January, 1967, Supplement to Roster the following name appeared incorrectly as "Ristjansson". Please make the correction to:

KRISTJANSSON, Mr. Gudmundus	41 Perry St., Apt. 1A, New York, N.Y. 10014

NYSC NOTES NUMBER 134 SEPTEMBER 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, OCTOBER 8th, 1967, at 2:00 P. M.

PROGRAM: NOTES ON THE MOLLUSCAN FAUNA OFF THE COAST OF NORTH CAROLINA (with color slides)
By Hugh J. Porter, University of North Carolina Institute of Marine Sciences

THE BIRDS AND THE BEES AND THE SANIBEL BENDS (with color slides)
By Bert Porreca

SHELL-OF-THE-MONTH (to be announced)

AMU CONVENTION AT OTTAWA, ONTARIO

The thirty-third annual meeting of the American Malacological Union was held at Carleton University, Ottawa, from July 31st through August 4th. It was the best attended convention in the Union's history, more than 160 members and guests being present. The facilities at the University were unusually comfortable since the building was new and every room was provided with modern air conditioning. The sessions, presided over by Dr. Leo G. Hertlein, took place in a newly built lecture hall which had almost perfect acoustics and in every way was comfortable and practical. One day's sessions took place at the National Museum where box lunches were provided, to be eaten under the trees on the Museum grounds.

There were the usual numbers of interesting and frequently valuable papers which ran the malacological gamut, but the most pleasurable thing was the opportunity to see again old friends from previous meetings and to make new friends from the present group.

Delegates were guests of the National Museum at the banquet, which was held in a large private banquet hall where the food was delectable and the waitresses in mini-skirts were good to look at in addition to being friendly and helpful. ... The field trip took place at Fitzroy Harbour Provincial Park, on the Ottawa River, where land and fresh water shells were collected. ... An unusual feature was the opportunity to visit Expo 67 by chartered buses.

This was in every way an unusually entertaining and useful meeting, and not enough thanks can be given to Dr. and Mrs. Arthur H. Clarke and other shell people of Ottawa who worked so hard and did so much for the members and guests.

. . . M. K. Jacobson

(By unanimous vote, Dr. Arthur H. Clarke was elected president of the AMU for the coming year and Dr. Joseph Rosewater, vice-president. An honorary life membership was bestowed on Margaret C. Teskey, who has served so long and well as secretary.

The 1968 meeting will be held at Corpus Christi, Texas. Dates and details will be printed in these NOTES as soon as they are received.)

dr

PUBLICATIONS:

REVIEW

There has been a badly executed copy of a part of G. B. Sowerby's 1879 section on Murex from the Thesaurus Conchyliorum, released by a California business man. Although glibly advertized as a "treasured collector's item" and with "precisely reproduced" illustrations, the pamphlet is not a facsimile, but a poorly "varityped?" copy of the explanation to the plates, and a doctored, black-and-white photo-offset of the original colored publication. Most of the figures are so muddy and poorly done that only a few dozen of the 264 figures are useful. The 55 pages of text and index are not included.

There are spelling mistakes in the copy (one reason why genuine facsimiles are worthwhile); plate numbers and special size indications are omitted on the plates. The introduction says that the "Theasuarus" (should be Thesaurus) contains names of the times of Sowerby and that there have been some name changes since. This is an understatement; of the 264 names, probably only 60 or 70 are now considered valid and in the genus Murex, even in the broadest sense.

A good rule for a conchologist is never to order or buy a shell book unless he has seen a copy or has seen a discerning review of it in some journal or club newsletter. Be sure the author is reputable, even big publishers have been known to issue bad books. Fortunately, if not entirely satisfied that you are getting what was advertized, you can get your money back from reputable dealers.

. . . R. T. Abbott

DONAX ON LONG ISLAND

There have been two recent reports of Donax (presumably fossor) at Atlantic Beach, L. I., one of which described large numbers of the living bivalves present September 4th at the section of beach in front of the Atlantic Beach Hotel. Unfortunately none were collected.

This is apparently the first occurrence of Donax in this area since 1955. Karl Jacobson, who studies these occurrences, requests that if members having access to the Atlantic Beach section would make a point of collecting and donating some specimens it would be greatly appreciated. The beaches to the eastward should also be checked for Donax, which are found during low tide hours digging into the sand at the water line. If you don't find them, that should be reported, too. (None turned up at the Rockaways this season.)

Specimens will be appreciated by the American Museum, by Karl Jacobson, and by Paul Chanley of the Virginia Institute of Marine Science, Wachapreague, Virginia 23480, who sent a special request for observations of Donax along the east coast.

Specimens should be accompanied by complete data, giving location, date, any remarks you deem pertinent and, of course, your name. Mr. Chanley would particularly like some preserved specimens (drop them in alcohol) and offers to pay shipping costs.

We hope the Donax survived the period of unusually rough surf September 12 - 16. Let us know?

dr

COLLECTING IN THE NETHERLANDS ANTILLES

by Neal and Eva Seamon

Preliminary information indicated that the islands of Aruba, Bonaire and Curaçao would be an ideal place to combine a vacation with shelling. An inquiry to Dr. Henry Coomans of the Zoologish Museum in Amsterdam was answered with a wealth of information in the form of a map indicating good shelling areas on all three islands. These "ABC Islands", part of the Netherlands Antilles, are located 500 miles north of the equator off the coast of Venezuela. After a few letters to shell collectors there, and armed with the shelling map, we flew down to Bonaire in May.

Arriving in Bonaire, we checked into the informal Flamingo Beach Club on the leeward coast right on Kralendijk Bay. The Club had shelling equipment and, very important, shell-cleaning facilities. Early the next morning -- after being assured by the manager, who is an excellent diver, that there were no hostile elements in the bay -- we jumped in. Swimming out to twenty-foot depths we began to turn over small, then large, and finally huge, dead coral heads in our search for cones. The beautiful Conus aurantius Hwass started turning up and at the day's end we had four of them. The cones were partially buried under the silty sand and required light fanning with our flippers to expose them. Under the same huge, dead coral heads Voluta musica Linné was found, but deeper under the sand, requiring heavy fanning. A large (3") specimen was found in twenty feet of water while a few smaller ones were taken in from five to ten feet, all under coral heads.

In the same general area off the Club we also found Conus regius and Conus mus; these were exposed on the sand bottom under dead coral heads. Cypraea spurca and Trivia pedicularis were collected from the underside of dead coral heads and rocks in five to ten foot depths. A Triton's Trumpet, Charonia variegata, was found on the side of a live coral head in twenty-five feet. A trip over to Klein Bonaire, a small island in Kralendijk Bay, netted us some small olive species resembling Oliva reticularis.

It is impossible to dive in the rough waters of the windward coast but we collected, in shallow water at Lac Bay, some Voluta musica that were shorter, wider, and with larger knobs than the musica we had found on the leeward side. No live Strombus gigas were seen, but there were mounds of empty gigas shells -- piled about ten to fifteen feet high -- on both ends of the bay, that must have contained over 40,000 shells. (Needless to say, the natives are very fond of gigas meat!)

We collected nineteen specimens of Conus aurantius in our six days of snorkeling on the leeward coast. The shells averaged 45 mm. in height with one giant of 72 mm. The aurantius is very variable in color: Mainly orange and white shells were found, with a few russet and white, and two brown and white beauties. The body whorl has raised, revolving lirae colored orange forming a dot-dash pattern. Interestingly enough, the shell is reported as an Indo-Pacific species in publications ranging from Bruguière's "Encyclopedie Methodique" Vol. 1, 1792, to recent books such as "Cone Shells of the World" by Marsh, "Standard Catalog of Shells" by Van Nostrand and the old stand-by, Webb's "Handbook for Shell Collectors". These popular books all list the locality as the Indo-Pacific, copying Bruguière's original locality of "Indian Ocean". Al-

Though *Conus aurantius* had been reported from the Caribbean in the 19th century, it was Dr. Henry Coomans who really brought it to the attention of the shell world about 1960.

In Curaçao we dived with Wil and Add Janssen, old trading chums from our Hawaiian days. In San Juan Bay, on the northeast side of the island, we collected *Conus ranunculus* from under rocks and dead coral heads in four to eight feet of water. All sizes of *Conus regius* were also taken, with one yellow form, all found exposed on the sand under dead coral heads. Eva, on the beach nursing a sea urchin sting, found without getting wet a perfect, though dead, *Strombus gallus* -- high and dry with periostracum intact! While Eva collected rock shells near shore, we found *Cypraea spurca* on the undersides of dead coral heads as well as *Cypraea cinerea*. Two specimens of *Latirus infundibulum* were among other shells collected at San Juan Bay. The bottom of the bay was covered with the thickest growth of black sea urchins we have ever seen -- so entering and leaving the water was a slow process.

The Janssens showed us their large Antillean collection containing shells such as *Murex argo*, *Conus bermudensis*, *Murex margaritensis*, yellow forms of *Strombus gallus*, several color varieties of *Conus daucus*, and giant *Conus ranunculus*. We learned from them that *Conus aurantius* is rarely taken in Curaçao and when found it is in deeper water than on Bonaire. Before leaving Curaçao we tried one night of skin diving and netted one *Strombus costatus*.

The second largest island in the group is Aruba, which is only 15 miles from the Venezuelan coast. We stayed on the leeward side at the Basi-Ruti Hotel, on the famous Palm Beach. Diving in the waters in front of the hotel was not successful here, as only one slightly immature *Strombus gigas* was found -- in eight feet of water on the clear sand bottom. Our shelling contact on Aruba, Mrs. Elizabeth Johnson, saved the day when she took us to a few of the better spots. She made it clear that shelling in Aruba was far from good. However, at a small fishermen's cove at the north end of Palm Beach, three *Conus pygmaeus* Reeve were found in a few feet of water, on sand. These shells were one inch long, white with russet splotches, and the body whorl was deeply grooved. The animal's foot and siphon were beige colored. In the same area we found six large olives which we have tentatively identified as *Oliva fulgerator* Lamarck.

Traveling further south down the coast, we stopped at Spanish Lagoon -- where we found *Murex brevifrons* under a bridge. The *Murex* were variously colored white, brown, blue-black, or brown and white. Later that night the *Voluta musica* were feeding in the Baby Lagoon on the south shore. Armed with flashlights and wading in a foot of water, Mrs. Johnson soon showed us how to spot them on the surface of the sand. Within half an hour we had a nice variety about 2" long. These volutes were the most colorful of those taken on the trip, with deep blue or russet splotches. Two of the live volutes were destined for our aquarium in New York. A few days later we returned to the Spanish Lagoon for a few young *Murex brevifrons* which also had reservations on KLM.

We searched in vain for *Conus hieroglyphis* Duclos 1833. We had to be satisfied with viewing the specimens that Elizabeth found, several years ago, alive on a sand bar which had been exposed by an extremely low tide.

Incidentally, Mrs. Johnson is the lady who was reported in the Hawaiian Shell News last year as the first to find live Cypraea mus in Venezuela in 150 years!

We consider our trip a success for a first visit to a new area. We were not interested in obtaining many species, but mainly Strombus, Conus, Murex, Voluta and Cypraea -- and we found many of these shells. We would recommend these islands for skin divers, particularly Bonaire and Curaçao. We found few species by wading. The tides are insignificant and generally calm conditions prevail all year round. The islands are clean; the water is safe, being distilled from the sea in huge modern plants. Accommodations are reasonable in price, especially with the summer rates which start in May.

As it was permissible to bring marine shells live into New York, we brought Murex brevifrons and Voluta musica home to our aquarium. They are doing well and adding growth on a diet of local species. The musica is very quiet during the day, but each night the faint strains of "Ariba Aruba" can be heard emanating from the tank.

NOTES ON THE FEEDING HABITS OF CAPTIVE MUREX BREVIFRONS AND VOLUTA MUSICA

A few days after their return from Aruba the Seamons generously gave four of the Murex brevifrons and one Voluta musica into the care of the Raeihles, thus setting up a duplicate observation. After a period of concern as to whether they would live in captivity, the Murex brevifrons was the first species to feed, two weeks after capture. Those in the Seamons' tank ganged up and drilled an oyster, Crassostrea virginica; those in the Raeihles' tank started one by one to drill a Mya arenaria -- then quit and fed from between the slightly gaping valves. Since then the brevifrons have fed almost every day or so on a variety of local species, mostly Mytilus edulis as this is usually the food present, but also on Modiolus demissus, Spisula solidissima, Crepidula fornicata and one specimen of Nassarius obsoletus. The usual method is by drilling a hole through the shell of the live prey, but small mussels and one Littorina littorea were enveloped in the foot and smothered. So far, the only southern species the Murex have attacked is the Brachidontes which had been found with them in Aruba.

Neal was the first to notice that the Murex were adding new growth, which must have started very soon after they commenced feeding. He figures it took about six weeks for the approximately 55 mm. specimens to add new shell varix to varix, after which there seemed to be some period of rest.

While the feeding habits of Muricidae are fairly well known, we could find no information in the literature we have at hand to guide us on what to feed the Voluta musica. Only in JOHNSONIA, Vol. 4, No. 43, was there even a reference to the food of the family. On page 129: "So far as is known, all members of the Volutacea are predaceous or are scavengers feeding on dead animal matter." and on page 164: "The stomach contents of Adelomelon riosi" (a large, deep-water volute taken off Argentina) "consisted of fragments of an Astropecten." So it was "Try anything!", and we did -- even to anemones and algaes.

The Voluta, which are about 2" in height, are in the same tanks with the Murex and food was always available, but it was not until 32 days after capture that one musica enveloped in its foot a Littorina littorea of almost an inch and consumed it completely. Two days later the musica in Seamons' aquarium literally pounced on newly introduced Nassarius obsoletus. Since then both Voluta have fed at irregular intervals on Nassarius obsoletus; one has also consumed an Aequipecten irradians. They do not drill, but seem to smother the prey in the enveloping foot with the assistance of a rather thick mucus. Only once was a musica observed to scavenge, and then on a freshly opened Mytilus edulis.

Although when Neal and Eva collected the musica they were found carrying and apparently feeding on a small cerith, the Batillaria minima and Cerithium variabile in the aquarium were left untouched as were the other Caribbean species of Prunum apicinum and Nassarius ambiguus.(!)

Both Voluta musica have added new shell in true color and pattern, but the growth is very little compared to that of the Murex brevifrons.

. . . Dorothy Raeihle

EARLIEST AMERICAN CONCHOLOGY

by Morris K. Jacobson

Several marine shells of the New World were known to students before the time of Linné, but he is the one who first described and gave valid scientific names to these forms. However, it was not until 1817 that the first non-marine shells of the new continent were officially described and validly named.

Thomas Say, the father of American natural history, wrote the article on Conchology in the "First American Edition of the British Encyclopedia or Dictionary of Arts and Sciences, comprising an Accurate and Popular View of the Present Improved State of Human Knowledge"; by William Nicholson etc. etc., Philadelphia: Samuel A. Mitchell & Horace Ames. The article on Conchology appeared in Volume II which was published in 1817. This encyclopedia was later issued in several new editions. The first edition is exceedingly rare, and it was the good fortune of the writer to see a copy in the Museum of Comparative Zoology in Cambridge, Massachusetts. This copy had been bought at a rummage sale in Washington in 1929 by Dr. William J. Clench, who presented it to the Museum in 1933.

The article covers pages 8 to 21 (unnumbered) and includes four plates drawn by Say himself. It is printed in rather small type with two columns per page, but makes very entertaining and instructive reading:

It begins with a long introduction and outline of Conchology (or Testaceology) in which the various terms used in descriptions are discussed. The author deplores the fact that for most shells only the "habitation" is known, the "inhabitant" having died and disappeared. This concept of a mollusk as consisting of two parts, a house and a tenant, was widespread in the early days of the science, and appeared as late as the latter part of the last century. Say recognized that the "dwelling" is the most important part for recognition of species, but was ahead of his time when he pointed out the importance of the animal (today we'd say "soft parts") in the "construction of the genera", but, true to his time,

he regards this as only "a secondary consideration to guide us in the formation of new genera and correcting the old".

Following Linné, Say divides the phylum into univalves, bivalves, and multivalves, rejecting the attempt of some French savants to introduce "trivalves". The multivalves, besides including some true mollusks like Pholas and chitons, also included many non-mollusks such as barnacles and others. The bivalves also included brachiopods, - and several casts of worms and even foraminifera were considered to be univalve mollusks.

The most valuable portion of the article includes the last few pages, in which Say describes, figures, and names 29 American non-marine species of which all but three names are in use today. This is an amazingly good record for any age! Of the three names now rejected, two are considered synonyms ("Helix" Glaphyra = Oxychilus cellarius Müller; Planorbis bicarinatus = Helisoma anceps Menke). The third, "Lymnaea" vivipara (=Viviparus viviparus Linné) is recognized as a purely European shell. Say probably had at hand the well-known Viviparus contectoides Binney (or V. georgianus Lea) which greatly resembles the European shell. In this connection it is interesting to note that Say thought that the American Lymnaea stagnalis differed somewhat from the European and hence he gave it the subspecific name of jugularis. Most writers today do not follow him in this.

All Say's other names are in common use today, but of course in different genera. Thus under Helix Say lists albolabris, arboreus, tridentata, and alternata. (All trivial names were capitalized.) Under Lymnaea, besides true Lymnaea such as catascopium, he lists heterostropha (today Physa), subcarinata (today Lioplax), virginea (today Goniobasis) decisa (today Campeloma) and the vivipara mentioned above. In addition, he lists corticaria (today Gastrocopta) under the genus Odostomia which today, credited to Fleming 1817, is considered a genus of parasitic marine snails of the family Pyramidellidae.

The inland bivalves are divided into three genera: Unio, Anodonta, and Cyclas (today Sphaerium). Under Unio he has such well known trivial names as crassus, purpurea, ovatus, cariosus, ochraceus, nasutus, alatus, cylindricus, and undulata, all of which are in use today but in various genera; not all students agree even today as to which all belong. The Anodonta include cataracta and marginata, both generic and trivial names in use today. Under Cyclas we find similis and dubia, the latter today a Pisidium.

Each of these shells is illustrated (for the most part rather poorly) because, as Say explained, "As we have added figures of all the shells here noticed, it was not thought necessary to enter very much at length into the description of them". Say also refers to pictures in Lister's "Historia sive Synopsis methodicae Conchyliorum", a pre-Linnean author much used by Linné and others. However, the genius of Say enables all his shells here discussed to be recognized today without difficulty.

Volume I of the "Encyclopedia" bears the date 1816; it is known that Volume II, the "Conchology Volume", was printed in 1817. However, many of Say's names today erroneously bear the date 1816 (e.g. Pilsbry's monograph on "Land Mollusca of North America") -- and with the Rule of Priority playing such a large role in the naming of shells, the difference of one year may some time prove to be of great importance.

NYSC NOTES NUMBER 135 OCTOBER 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, NOVEMBER 12th, 1967, at 2:00 P. M.

PROGRAM: COLLECTING IN PORTUGAL AND SPAIN (with color slides)
by Albert and Anne Taxson

SHELLS AND THEIR CRADLES by Esther Reader
presented by William E. Old (color slides)

SHELL-OF-THE-MONTH, MUREX ALABASTER
by George E. Jacobs

THE KATSARAS AUCTION

At Nick's auction September 17th there was again the display of fine specimen shells with some surprises among the rarer species. Particularly noticed exotics were a huge *Murex ramosus* (10½"), a *Mitra floridana*, *Marginella desjardini*, *Pleurotomaria hirasei*, *Cypraea gaskoini*, *Murex bednalli*, *Conus aurantius*, etc., etc., and an unusual specimen of *Scaphella junonia* -- with very dark spots on a background flushed with purplish pink.

The auction was well attended and, as usual, there were some bargains, and some emotional bidding -- but most of the knock-down prices were "down the middle". There was a mid-afternoon intermission with welcome refreshments, after which bidding resumed with renewed vigor under the direction of auctioneer D'Attilio.

During the past few years Nick has indicated that he did not wish to continue the annual auctions -- then has relented. This year, however, after the mounting strain of the past year in accumulating an especially attractive collection, he says, "Well -- perhaps in 1970 . . " We grant that he is due for a rest. We'll let you know when a future auction is planned.

dr

SHELL SHOW

The Sanibel Community Association has scheduled their 31st Annual Shell Fair at Sanibel Island, Florida, to be held Thursday to Saturday, March 7, 8 and 9, 1968.

NYSC MEETING DATES 1967-68

The regular schedule of "the second Sunday" will hold except for the months of April and May, 1968, when the meetings have been moved to the first Sunday of the month to avoid conflict with Easter Day and Mother's Day. For your convenience we list here the meeting dates through June:

November 12, 1967
December 10, 1967
January 12, 1968
February 11, 1968
March 10, 1968
April 7, 1968
May 5, 1968
June 9, 1968

May we suggest you mark your calendar?

"NOTES ON THE MOLLUSCAN FAUNA OFF THE COAST OF NORTH CAROLINA"

Our guest speaker October 8th was Hugh J. Porter of the Institute of Marine Sciences, Morehead City, North Carolina, and his presentation concerned recent and exciting discoveries made by scientists working from the research vessels "Eastwind" and Oregon".

The Cape Hatteras-Cape Lookout-Morehead City-Beaufort section of the North Carolina coast has long been of particular interest to marine biologists, as here are the overlapping edges of two zoogeographical provinces -- the "Carolinian", influenced by the Gulf Stream which turns seaward at Cape Hatteras, and the "Virginian", with cooler coastal currents from the north. The coastline curving west and south from Cape Lookout toward Cape Fear is the shoreline of Onslow Bay. In 1965, working from a U. S. Fish and Wildlife vessel in Onslow Bay, Dr. R. J. Menzies with graduate students discovered a submerged reef 43 miles off the coast. Part sand and part rock, the reef was 80 to 100 fathoms below the surface of the ocean, and directly under the Florida current!

Menzies' Reef was again sampled, in 1966 and 1967, by scientists dredging from Duke University's research vessel the "Eastwind". In addition to dead shells, and fossils up to 19,000 years, they have brought up Recent species not seen in the area in many many years and have established between 20 and 30 new northern range records for southern species. Among the new records, and first on the list, is the very rare *Haliotis pourtalesi* Dall, the only *Haliotis* on our coast and hitherto found only by dredging in deep water off the Florida Keys. Other new records for species "normally" found from South Florida to the Antilles and in between: *Epitonium krebsi* Mörch, *Cymatium labiosum* Wood, *Architectonica peracuta* Dall, *Trivia antillarum* Schilder, and *Tenogodus squamatus* Blainville (the Slit Worm Shell).

The "Eastwind" dredgings contained many more species we think of as only southern: *Aspella anceps* Lamarck, *Spondylus americanus* Hermann, *Amaea retifera* Dall, *Microgaza rotella* Dall, *Cythera cymella* Dall, *Cantharus multangulus* Philippi, *Opalia pumilio* Mörch, *Calliostoma jujubinum* Gmelin -- and more. About 50 gastropod and 37 bivalve species were collected; the work is so recent that count and identification has not been completed.

Nearer shore in Onslow Bay the "Oregon" worked the scallop grounds. (Those of you who attended the AMU Meeting last year will remember the fine collecting from the scallop boats. Mr. Porter told us that the *Aequipecten* are gone -- that the last commercial haul was made about the first of August. The beds had been fished hard for two years; it is undecided whether the scallops have been overfished or whether their disappearance is part of a natural cycle.)

Using a commercial scallop dredge, the "Oregon" brought up about eighty species, and five or six new records. Two of the new records from the "Oregon" were *Murex rubidus* F. C. Baker, which was taken alive in scallop samplings, and *Neosimnia piragua* Dall. We have always associated *Neosimnia* with Gorgonia. No Gorgonia was mentioned in the presentation, but Mr. Porter did show a slide of the "Oregon's" dredge, its heavy bar bent after "hanging up" on coral. In this area of the scallop beds *Xenophora conchyliophora* Born was one of the commonest species -- and

Lyropecten nodosus Linné, also alive, was not uncommon. Found to be common on the scallop grounds were Phalium granulatum Born (which was successfully sponsored as State Shell by the North Carolina Shell Club), Cassis madagascariensis to 5+", Conus floridanus Gabb; less common were Conus sozoni Bartsch and Conus juliae Clench.

One of the vessels (we missed the exact data) dredged a lovely, live Pecten chazaliei Dautzenberg for another new northern record. And an unusual occurrence, but not a new record: a Scaphella junonia Shaw was recently taken by fish trawlers.

Significantly, only one species, a Nucula, was dredged to establish a new southern record.

Shelling? Though these species all range to North Carolina, they are well offshore and rarely found near the beach. Mr. and Mrs. Porter agree that Cape Lookout (reached by ferry) is the best shelling area, but even here good finds are sporadic to rare.

. . . Dorothy Raeihle

PUBLICATIONS ANNOUNCED BY:

Paleontological Research Institution
109 Dearborn Place
Ithaca, New York 14850

CATALOGUE OF MOLLUSKS
Genera of the Bivalvia: A Systematic and Bibliographic Catalogue
by Harold E. Vokes

"A 291 paged catalogue (with index) of all the names of pelecypod genera and higher classification up to 1960. Valid and invalid names, as well as emendation and erroneous spelling of names, are indicated. An important necessary compendium for all natural history libraries and persons interested in the bivalves."

(Bull. Amer. Paleont. vol. 51, No. 232, 1967. $10.00 postpaid.)

LET'S FIND FOSSILS ON THE BEACH
by M. C. Thomas

"An enthusiastic description of fossil hunting of vertebrate bones on beaches, mainly Florida, with 19 pages of illustrations of the common bones, teeth, plates, and shell. Excellent advice to amateurs in fossil collecting and general description of some vertebrates."

51 pp., 20 pp. figures, $1.50 postpaid.

NEW REPRINT (facsimile) 1967, of the important out-of-print text,

CATALOGUE OF THE COLLECTION OF MAZATLAN SHELLS
by Philip P. Carpenter, 1857

576 pages. Full discussion of 694 species. $6.00 postpaid.
"This rare book of the living shells of Mazatlan, West Mexico, is now available. Illustrations (60 plates) and Index published separately*in 1966 (for sale address above). The two publications, text, plates, and Index, complete the extensive study by Carpenter of the immense collection of Mexican Pacific mollusks."

* (See announcement in NOTES No. 131, April 1967.)

PUBLICATIONS:

BRITISH COLUMBIA PROVINCIAL MUSEUM BOOKLETS RECOMMENDED

Publications number 17 and 26, in the excellent series of handbooks issued by the British Columbia Provincial Museum, are worthy of attention by all shell collectors. No. 17, "The Intertidal Bivalves of British Columbia" by D. B. Quayle, and No. 26, "The Intertidal Univalves of British Columbia" by Lela M. Griffith, are available at 50¢ each. The booklets may be obtained from the British Columbia Provincial Museum, Department of Recreation and Conservation, Victoria, British Columbia, Canada.

Chicago Shell Club Newsletter, Sept. 1967
Mrs. Alice Burke, Editor
(WEO)

THE GARDEN STATE SHELL CLUB

In its four and a half years the Garden State Shell Club has contributed an educational service by fostering an interest in mollusks, not only in adults but also -- and perhaps more especially -- in the young people among its members.

We were genuinely sorry to receive on October 18th an official notification of the dissolution of the Garden State Shell Club. The notice also advised that inasmuch as their semi-annual publication, "The Jersey Sheller" would in their opinion be unable to support itself, it has been terminated as of the June, 1967 issue (Vol. II, No. 2).

TRAVELING TO MEXICO?

There has been a change in requirements for travel to Mexico. (See: "Mexico, Anyone?" by Dot Myhre, NOTES No. 131, April, 1967. --Ed.)

There is no longer any need for a smallpox vaccination. The U. S. Public Health Service lifted its requirement June 7, 1967. And Mexico has dropped its regulation. I can tell you this is good news for us out here!

One condition is attached to the new ruling: If the traveler has visited any other foreign country within 14 days of his re-entry to the United States the vaccination will be required.

Dot Myhre
Vice Pres., Pacific Shell Club

INTERNATIONAL LEAGUE OF YOUNG SHELL COLLECTORS

Attending members will remember when Edgar Bauer and Steven Britz discussed plans last winter for an international shell club for young people. That the organization has become a reality under the above name is evidenced by receipt of Vol. I, No. 1 of "The Young Shell Collector's Quarterly". This mimeographed publication of 13 pages reveals that these young people are interested in serious study, with the emphasis on malacology.....Edgar Bauer (Executive), Daniel Carrión 249, Miraflores, Lima, Peru, will welcome articles. Steven Britz (Treasurer) Whitney Plaza, Apt. 442, 32 Whites Ave., Watertown, Mass. 02172 will welcome dues ($2).

RETURN TO THE SEA OF CORTEZ

by Dorothy Germer

Pleasant memories of our trip to Mexico and the Gulf of California made us cherish a dream of some day returning. So while planning our 1965 vacation we thought, "Why not now?"

We left our home in New Jersey early in the morning of July 24th, arriving in Puerto Penasco, Sonora, Mexico about 4:30 in the afternoon of July 27th. At the border we had obtained our Mexican travel permits and Mexican automobile insurance. The Mexican immigration officers were polite and helpful.

Puerto Penasco is a small fishing village, founded about thirty years ago by shrimp fishermen. The only motel is the "Playa Hermosa" and, though not up to American standards, it is clean and comfortable; there is a dining room and bar on the premises.

The tide was dropping as we arrived, hot, dusty and hungry. Did we unpack the food? Not on your life! We grabbed the collecting buckets and off we went! But after a short time we gave in and headed back for food.

At high tide the beach in front of the motel looks like a lovely white sandy beach, but at low tide it is a sheller's dream -- rocky reefs with tide pools galore. The rocks are full of fossilized shells, and covered with marine growth.

We didn't do much collecting that first evening, but our son Charles spotted the area where the Agoronia and Olivellas were to be found. Our young son likes to find microscopic shells, so he was busy collecting small black Crassospira (so far we have not been able to identify them). Cerithium stercusmuscarum Val. were everywhere -- you had to walk on them.

The next morning, while my family was still snoring away, I quietly tiptoed out -- only to find the boys right behind me. In the early morning light the reefs looked inviting and just covered with shells. Turning over a small slab revealed two small Epitonium as well as many Anachis and other small shells. Now I spotted a treasure: a Hexaplex erythrostoma Swainson. Sure, I know they are common -- but to find one yourself is a thrill! It has always been one of my favorites, so it will be treasured. We also found many other of the common shells -- Pyrenes, Acanthina, Turbos, and many bivalves.

We found adult Muricanthus nigritis Philippi here in Puerto Penasco; in San Felipe we had found only juvenile specimens. I also found my first Typhis cornutus Brod., and what a thrill that was!

The tide kept dropping and soon I caught up with a gentleman who was going through all the motions of (Need we say?) a shell nut. He asked me if I was "one of those shell pickers" and where we came from. When he heard that we were from the New York Shell Club, he was amazed. He showed me how to hunt Strombus, and showed me one he had just found.

That evening we had a cloudburst and the roof started to leak; being a flat roof the water just stayed as it was too much for the runoffs. We sent Charles for a mop and put the collecting buckets, pans and waste baskets under the drips. Then grabbed a can of cervasa (beer) and went

out on the porch to join our neighbors in a jolly time. The manager promised to fix the roof mañana, but mañana it didn't rain, so they never came.

The storm washed sand over the reefs so shelling next day was almost impossible. We decided to take pictures of the mollusks we had. Taking the forgotten Gorgonia out of the water, the sun glistened on a small purple object -- a Neosimnia! The boys and I were so excited that our neighbors ran over to see what was up. The father started to take interest after seeing that those shells had critters living in them. Some of our little mollusks were show-offs; others were so shy that just a bird flying over would send them back into the shell. The Strombus were so fast, all we could get was a blur. The little Agoronia turned out to be the actors -- they crawled all over everything, even our hands.

Later Charles found a lovely, golden colored Agoronia testacea and some more Neosimnia, but now we had five more eager shell collectors following us and shelling turned into a circus, a funny one at that. When we said "Good-by" to our neighbors we said "Greetings" to five new shell collectors.

Now it was time to say "Adios" to Puerto Penasco and make our way north to Sonoyta. It was a six-hour ride through the Sonora Desert with its tall Saguaro Cactus and many forms of desert life, our favorite the Road Runner -- a bird that looks like a skinny rooster, and runs very fast. We passed large lava fields from extinct volcanos; here and there you could see lava flows still on the peaks. From Sonoyta we took Mexican #2 to Mexicali; from there the road to San Felipe on the west side of the Gulf. Here in the Mexican Desert we thought of the Spanish explorers and the hardships they must have endured. For water is very scarce and the sun is very hot.

Arriving in San Felipe, it was wonderful seeing again the mountains we have grown to love, the deep blue waters of the Gulf. It was high tide and the flying fish were jumping out of the water; the sea gulls and the pelicans were having a feast. We settled ourselves in a very comfortable motel then headed for a swim in the Gulf.

The next day at low tide we headed north of the town to a rocky beach under the black mountain. Here we found Chiton virgulatus Sowerby under the large rocks. Inside the mantle of these Chitons were tiny little crabs living in their gills. We did not find these crabs in the Chitons last summer nor were there any in the Chitons in Puerto Penasco. Now even the small Chitons had these tiny crabs. We wonder -- do they live peacefully with their host, or are they parasites?

We did not do much collecting in San Felipe, as the tides were low at noon and the heat was terrific. So we spent the remainder of our stay getting to know our Mexican friends better, and enjoying their pastime of siestas every afternoon. We were sorry when we had to leave San Felipe to head back to New Jersey, and we hope to return again and spend a longer vacation there in the Land of Mañana (Mucho Gusto Mexico).

(The listing which follows is of species in addition to those previously listed from the upper Gulf by the Germers in NOTES No. 109 and by the Taxsons in NOTES No. 118. Ed.)

ADDITIONAL SPECIES COLLECTED LATE JULY AND EARLY AUGUST, 1965 from PUERTO PENASCO (PP) and SAN FELIPE (SF)

by Dorothy and John Germer.

PP-SF	Acmaea mitella Menke
PP	Anachis adelinae Tryon
PP	" gaskoini Carpenter
PP	" ritteri Hert. & St.
PP	" vexillum Reeve
SF	Anatina undulata Verrill
SF	Anadonta edentuloides Verr.
PP	Arcopsis solida Sowerby
PP	Brachidontes multiformis Carpenter
PP	Bulla punctulata A. Adams
PP	Cadulus austenclarki Emerson
PP	" panamensis Pilsbry & Lowe
PP-SF	Chione gnidia Brod. & Sow.
PP-SF	" pulicaria Broderip
PP	Crassispira nigerrima Sow.
PP	Crassispira sp. ?
PP	Crepidula arenata Broderip
PP	" incurva "
PP	" marginalis "
SF	Cryptomya californica Conrad
PP	Dentalium quadrangulari Sow.
PP	" splendidum Sow.
SF	Diodora alta C. B. Adams
SF	Donax gracilis Hanley
PP	Hipponix pilosus Deshayes
PP	Lepidozona clathratus Reeve
PP-SF	" subtilis Reeve
SF	Lucapinella aequalis Sow.
PP	" milleri
PP-SF	Lucina lingualis Carpenter
SF	Macoma mazatlanica Deshayes
SF	" pacis Pilsbry & Lowe
PP	Mitrella baccata Gaskoin
PP	" ocellata Gmelin
PP	Modiolus capax Conrad
PP	Muricopsis zeteki Hertlein & Strong
PP	Neosimnia nidleri tyrianthina Berry
PP	Nassarius angulicostis Pilsbry & Lowe
PP	Olivella zanneta Duclos
SF	" gracilis Brod. & Sow.
PP	Onchidella binneyi Stearns
SF	Ostrea angelica Rochebrune
SF	Phos articulatus Hinds
PP	Protothaca metadon Pilsbry & Lowe
PP	Pseudochama saavedrai Hert. & Strong
PP	Pteria sterna Gould
PP	Pyrene major Sowerby
PP	" strombiformis Lamarck
PP	Rimula mazatlanica Carpenter
SF	Sanguinolaria tellinoides A. Adams
SF	Semele guaymasensis Pils.& Lowe
PP	Serpulorbis margaritacus Chenu
PP	Solen pagensis Lowe
PP	Stenoplax conspicua sonorana Berry
PP	" magdalenensis Hinds
PP	" mariposa Dall
SF	Tagelus violacens Carpenter
SF	Tellina proclivis Hert. & Str.
SF	" tabogensis Salisbury
PP	Thais biserialis Blainville
PP-SF	Tivela planulata Brod. & Sow.
PP	Tricolia sp.?
PP	Trivia californica Gray
PP	Turritella anactor Berry
PP	Typhus coronatus Brod.
PP	Vermicularia pellucida eburnea Reeve

(See also NOTES No. 109, No. 118)

NYSC NOTES NUMBER 136 NOVEMBER 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Recording Sec'y
ANGELA SAVINO

Historian
NICK KATSARAS

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, DECEMBER 10th, 1967, at 2:00 P. M.

PROGRAM: SHELLING AT LITTLE CAYMAN (with color slides)
by Ethelyn Woodlock

SHELLS IN ADVERTISING (color slides)
by George Raeihle

SHELL-OF-THE-MONTH
by Milton (Mike) Werner

CORRECTION, PLEASE! In our report on the Katsaras Auction, NOTES No. 135, page 1, line 3-4, Mitra floridana should have read Mitra florida.

SHELL SHOWS SCHEDULED

The Palm Beach County Shell Club will hold their 1968 Shell Show at the Science Museum and Planetarium of West Palm Beach, Florida. The dates: Wednesday, February 21st through Sunday, February 25th.

The Lower Keys Shell Club is planning a Shell Show for the second week in March at Key West, Florida. We'll give you further details as they are received.

PUBLICATIONS ANNOUNCED:

THE INVERTEBRATES: VOL VI MOLLUSCA I
Aplacophora, Polyplacophora, Monoplacophora, Gastropoda

by Libbie H. Hyman, 1967. McGraw-Hill Book Company, New York, New York. Price $17.50. 792 pages which include 650 pages of text, 119 pages of bibliography, index. Very well illustrated with black and white drawings -- many of them the work of Anthony D'Attilio. "Mollusca I" is now available by order through the bookshop of the American Museum of Natural History. (A review has been promised for the next issue of these NOTES.)

Van Nostrand's STANDARD CATALOG OF SHELLS, Second Edition

Editors: Robert J. L. Wagner and R. Tucker Abbott. D. Van Nostrand Co., Inc., 120 Alexander Street, Princeton, New Jersey. Publication date, October 12, 1967. Price $5.95. This enlarged and revised edition contains hundreds more species listings, new sections on several genus, revisions of relative values, additional "quick lists" for northern Europe and southern Australia. Informative preface and introductory pages; international monetary quotations as of January, 1967; shells clubs of the world as listed with the American Malacological Union; partial list of shell dealers.

301 pages; illustrations in black and white; stiff paper cover with illustrations in color (shells in color painted by George F. Sandstrom).

AMERICAN MALACOLOGICAL UNION - 1968

NYSC member Anne Speers, AMU Convention Chairman, reported in Nov. 1967 Between the Tides of the Gulf Coast Shell Club, that "it has been decided that the July 15 - 19th AMU meeting will be held in beautiful Driscoll Hotel in downtown Corpus Christi. Single room rates are $9.00, double $12.00 and up."

Tentative itinerary was given as: Sunday - Southern Hospitality Welcoming Reception by the Gulf Coast Shell Club. Monday - French Pirate's Beach Party on Padre Island by the Corpus Club. Tuesday - AMU Council Meeting and Shell Club Night. Wednesday - Texas-style Chuck Wagon Bar-B-Q on the King Ranch by the Galveston - Houston Clubs. Thursday - Mexican-type Cocktail Hour by the South Padre Club; Spanish-style Banquet by the San Antonio Club. Friday - Field trips (to be announced). Wow!

EUROPEAN MALACOLOGICAL CONGRESS

The Third European Malacological Congress will be held at the Natural History Museum in Vienna, Austria from the evening of Sept. 3rd to the evening of Sept. 6th, 1968. According to President Oliver E. Paget, "the organizing committee cordially invites all malacologists to attend this congress."

The AMU may sponsor a group flight or a charter flight to Vienna, leaving sometime between Aug. 17-31, and returning Sept. 7-21, 1968. It would leave from either Philadelphia or Washington. Individual cost with a full plane charter (120 or more) would be $250-$275 a round trip; a group flight (50 or more people) would cost about $334.20.

Following (or preceding)the Congress may be a tour to the Dalmatian coast of Yugoslavia, with visits to marine stations in Yugoslavia and/or Italy. This optional tour of a week to ten days would require participation by 40 or more people. For further information, write Dr. Alan Solem, Chicago natural History Museum, Roosevelt Road and Lake Shore Drive, Chicago 5, Illinois.

MORE SHELL SHOW DATES

Naples, Fla. Feb. 20 - 22nd,'68. W. Palm Beach (see p.1) Feb. 21 - 25.

Ft. Lauderdale (Broward Co. Shell Club) and Miami Combined Shows, at Legion Hall in Dania, Fla., Feb. 23 - Feb. 25th.

Southwest Florida Conchological Soc. will hold its first show during the Shrimp Festival at Ft. Myers Beach Feb. 26th to March 3rd.

St. Petersburg Shell Show at Treasure Island Auditorium, St. Petersburg Beach, Feb. 28 - March 3rd, 1968.

Lower Keys Shell Fair, Convention Hall, Mallory Square, Key West, Mar. 9th and 10th.

Sanibel Shel Fair (reported last mo.) Community House, Sanibel Mar.7 - 9.

SHELLING IN TAIWAN

by Adelaide C. Davis (Mrs. Orville R.)

Perhaps this is not the place to reveal that our visit to Taiwan was not primarily for the purpose of collecting shells, nor that I collect something else with even greater enthusiasm than I collect molluscs -- but the "something else" is grandchildren. So when Adelaide II wrote us in the summer of '65 urging us to come to Taiwan for Christmas, and promising a new grandchild for the holiday, there was just one thing to do -- start packing!

Three weeks after we reached Taiwan I was ready to give up shelling as a bad job. We had promptly visited the "military beach" outside Tainan but, except for a large number of Turritella terebra, there was nothing worth stooping for. Of course I picked up anything that looked like a shell, or even a piece of a shell, but chiefly because bending is so good for the waistline -- and my daughter, who hadn't been able to boil water when she left home, had become a simply fabulous cook. We immediately "wrote off" that beach and pinned our hopes to Tam Shui, about 15 miles north of Taipei, as we heard that it had a fine beach and, better still, a reef. The whole family was going to Taipei -- about 250 miles north -- to await the arrival of the anticipated grandchild, and we were sure that it would be easy to get out to the shells which we were confident awaited us.

But nothing is easy in Taiwan! It is true that buses ran past our hotel every hour, going to Tam Shui, but they were identified only in Chinese characters -- and none of the drivers spoke English. We had to memorize the characters for Tam and Shui -- each of which had about a dozen "identical twins" -- in order to board the right bus, but eventually we reached Tam Shui. There was no sign of a beach, nor was there anyone around who could speak English. But the Chinese are a kind and patient people, and are a bit curious about strangers, so after a series of charades which deserved Academy Awards we found ourselves in a pedicab headed for the beach. Did you ever ride in a pedicab? Now there's a great institution! It's rather like a large bicycle with two rear wheels (I know that three wheels makes it, technically, a tricycle -- but spiritually it is still a bicycle!) Above the rear wheels is perched a seat, designed to hold three Chinese or one and one-half Americans. If the road is uphill you may have to dismount and help push. You must try a pedicab sometime!

The beach was lovely and the reef inviting, but an hour's rigorous shelling netted us only a handful of the commonest-looking shells, most of them dead. On our return to the village an ancient Chinese woman examined our "take" and began throwing out the dead shells. Charades to the rescue again! I finally made her understand that I was interested in the shells themselves, not the animal therein -- or perhaps I should say that I convinced her, for she certainly did NOT understand -- she was sure I was crazy. But she changed her tactics: She began seeking out the live shells. She would put a cerith to her lips, give a quick sucking sound, spit out the operculum and swallow the snail. Later when I repeated this shocking incident to my daughter her housegirl intervened with, "Oh, but Missi Davis...they are SO good -- just like candy." .... We had to face the fact that there would be little for us on any beach since all areas were combed daily for material for the family soup pot.

Now my husband has a disgusting habit of coming up with all the good ideas of this corporation, and it was he who suggested that I go to An Ping, a fishing village four miles from Tainan, to try to persuade fishermen to save some shells from their nets. Huang, the houseboy, went along as interpreter -- and what an asset he proved to be! For the Taiwanese are a clannish people and An Ping is Taiwanese to the core, so being introduced and recommended by one of their own gave me status well above Chinese, Japanese, or even other average Americans -- who are, incidentally, as well liked in Taiwan as we should like to believe we were in other parts of the world.

We didn't have to ask to have shells saved. Japanese and Chinese traders had already alerted the fishermen to save everything. All we needed were directions to homes of ship operators. Huang led me down tortuous alleys to our first stop. Here were huge Chinese baskets full of shells in every stage from alive and fighting to completely disintegrated. The baskets were stacked right up to the eaves of the cabins. My eye was caught first by a half-bushel of Volva volva, longer and brighter pink than I'd believed they ever came. Another basket held Murex trapa, another, an assortment of small Phalium, yet another of Architectonica. Bigger baskets of tun shells, five or six kinds, were in the background--but a stack of baskets of unsorted small shells claimed my immediate attention. I gingerly poked aside a few shells to see what was underneath when the owner, a lovely Taiwanese girl in her twenties, picked up a long Volva volva, stirred the shells as you would stir a stew, and handed it to me for a "scratcher". It was agreed that I would select what I wanted, put the specimens in a plastic bag, then they would be weighed and priced.

Soon the whole neighborhood assembled to see what was going on. Each time I selected a shell, a dozen hands would reach for duplicates and offer them for my approval. In order to ease the crowding Miss Mao, the proprietor, picked up the basket and emptied the shells over the pavement. After I had gone through them, the willing hands of my self-appointed helpers scooped them back into the basket and another was emptied. I began to get a little nervous about the bill I must be running up -- and the tips I'd be expected to hand out. I had brought only ten dollars with me since I'd scarcely expected to find shells, but with these beauties I would be grudging of every cent not spent for them. I asked Huang to suggest a suitable amount for tips -- and he was horrified!

"You would insult these people deeply if you offered them money. They are trying to be friendly and helpful. If you offer money they will feel that you consider them coolies. What they hope for is that you will smile at each of them and say 'Thank you'." I knew little Mandarin, but at least I did know how to say "Thank you" in their language -- and HOW I said it!

I had at last selected about a gallon of shells, and my spirits sank as Huang and Miss Mao began to argue about the price, always with spirit, and finally both appeared angry. I began to fear that Miss Mao was refusing to sell me the shells at any price. At last Huang said reluctantly, "She wants too much but I think you will have to pay her forty cents. She should not ask more than thirty." I begged him to pay her quickly, before she changed her mind, and as he handed over the coins I pulled out my "Seashells of the World" and showed pictures of Epitonium scalare, Tibia fusus and Terebra triseriata, asking if these ever came in to An

Ping. They giggled delightedly at the sight of Taiwanese shells in an American book and told Huang that they did, indeed, come in from time to time, but that their regular customers had asked that they be saved just for them. Then my new Taiwanese status began to serve me. Huang entered into a very confidential talk which he later interpreted for me as:

"Look, you're Taiwanese, I'm Taiwanese, and I think you'd rather trade with Taiwanese than Japanese or Chinese, wouldn't you?" - "Yes, yes, any day." - "Now my friend here, very good friend to Taiwanese....take care of her....is like trading with Taiwanese." Miss Mao promised and was as good as her word.

At the next stop the shrewd owner knew something of the value of individual shells, and after I had selected a number of *Conus australis*, *Voluta hamillei* and *Mitra coccineum*, he asked a dollar for the lot. Huang was mad as a wet hen. He ordered me to throw the shells on the floor and stalk out -- but I wasn't about to leave without those shells! Instead, I dickered. I finally agreed to pay fifty cents (Huang was seething) and Mr. Li, feeling that he had made a good deal, threw in three long, lovely *Terebra triseriata* to "sweeten the trade". Once more the little book was brought out, and once more I was told about the regular customers -- and again Huang went into the "You're Taiwanese..." routine with the same happy results. Mrs. Li said she oversaw the separation of shells from shrimp, etc. and promised that I would get first choice of everything. I noticed whenever I went in that she would feel about under piles of nets and coils of rope and bring out a can or bucket of choice specimens. She explained that it was necessary to hide them from the big buyers, since if they saw them they would insist on having them -- or no trading. Her prices were "high": Things like *Epitonium scalare*, *Cypraea hirasei* and *Cypraea hungerfordi* were three for 25¢. *Tibia fusus* was only 5¢ but usually imperfect, and *T. triseriata* was 2½¢ regardless of condition.

There was one other place where I did some trading, but not in person at first. Huang usually went alone, since the owner did not like foreigners. But he soon became curious about Huang's American client and, since he was something of a collector, I was finally invited to see his collection. I was interested in a large *Tibia fusus* in prime condition and asked if he would sell it, but the answer was "Not now". One day Huang rushed in to say that this man had an unusual dredging that I was to have first chance to buy -- but we must hurry! He even wanted me to hop on his motorcycle for the speediest possible trip, but be it said to my eternal credit that I took time to wait for a taxi instead!

There were two dress boxes full of interesting small shells, the largest of which were the *Conus d'orbigny*. There were mitres, cowries, dainty pairs of pectens -- a lovely assortment, freshly taken. The "catch" was that there was to be no picking; the sale was all or none, and his price was 100 Taiwan dollars. In view of the magnitude of this sale I asked Huang to inquire if his friend would also sell the *Tibia fusus*, and make me a good price on the whole deal. The *Tibia* was brought in and I asked: "How much for all?" I was told that the price remained at 100 Taiwan dollars; the *Tibia* was just to bind the bargain. Well, 100 Taiwan dollars is $2.50 American -- so I paid without a murmur.

I seldom went to An Ping that I was not approached by someone with anywhere from a handful to an armload of shells -- not for sale, but as gifts for the American lady who liked the Taiwanese. I shall never for-

get the shocked, hurt look on the face of Huang's sister-in-law when I asked, "How much?" Huang quickly apologized for me, explaining that Americans felt they were expected to pay for everything. He told me later that it had been like inviting a friend for dinner and having him ask for the check! I decided that if I couldn't pay in one way, I could in another. The Taiwanese are very fond of American candy. Their own is made on a base of bean curd -- and no matter how you dress it up with sugar and chocolate, it still tasted like bean curd. So I went down one day loaded with Hershey bars. To my amazement, they were politely but firmly refused. Huang explained that to take something in return for a favor wiped out all "credit" for having done the favor, and that they wanted me to think of them as nice people. I asked him to translate for me: "You have been so kind and gracious toward me, and have given me so much pleasure, that I am deeply grateful. I have wondered what I could do that might give you a little pleasure and have you feel toward me as I feel toward you. I hoped you might enjoy the candy -- but if you refuse it, what can I do?" Huang must have done a good job, for at the close of his remarks to them everyone smiled and every hand was extended for candy.

* * *

We flew to the Pescadores Islands, between Taiwan and mainland China, as we had heard that they were quite distinct in many ways from Taiwan proper. We inquired at the office of Mandarin C.A.T. Airlines about sightseeing tours and were told that there were none. We asked about taxis, but it seemed that no drivers could speak English -- so we could neither give them directions nor get information from them. Then the manager, with characteristic Chinese consideration, said that if we could wait until next day he would take the morning off and show us the islands himself; he had a new employee that should become acquainted with the Pescadores and he would have us all as his guests. Finding that I was interested in shells, he included in our tour the better beaches as well as temples and other landmarks. The beaches were just as bare as they had been elsewhere, but one of the outlying islands gave a little promise and we made plans to visit it next day. Our host wrote out a request for a bus ticket to that island, and early next morning we presented it at the bus station. In the waiting room we noticed a sweet faced, and very old, Penghuese woman having her breakfast -- a bowl of stew. She smiled...We smiled... whereupon she carefully wiped her chopsticks, turned the handles toward us, and offered to share her food....

We reached the end of the bus line, and when I started looking for shells at the water's edge near the small village I realized I'd hit the jackpot! True, the shells were dead, but there were so many of them, and such beautiful things! Suddenly I came upon a broken dish, a large bone, and an old shoe -- and then I knew! I was shelling in someone's garbage dump! Now Chinese garbage is very different from American garbage. Nothing edible is ever thrown out. Even parts of an animal which we consider strictly inedible are laboriously cleaned and eaten. You might say that they have the least offensive garbage on earth. Nevertheless, the idea stopped me cold -- for a moment. Then a lovely hinged pair of Tapes literata beckoned me -- and I continued raiding the garbage dump.

It was necessary for us to leave Taiwan briefly in mid-visit to renew our visas, so we flew to Okinawa for a week. We were concluding an hour of shelling on Nago Bay and had started for the bus stop when a voice called from a potato field, "Ay, Amigos, ¿Hablan Vds espanol?" I called back,

"Si, un poquito -- nada más." A weazened little Ryukyuan farmer was rushing toward us, spilling Spanish and potatoes as he came. It seems that he had spent some early years in Peru and had learned and loved the language. Seeing Orville's beret, he had mistaken us for Spanish tourists. He was quite as delighted to be using his Spanish again as we were to be talking with a native Ryukyuan -- no matter what the language. We saw the bus approaching and Orville raised his eyebrows to ask, "Do we take this one?" -- but I shrugged "No". There would be another bus in half an hour, and I intended to talk as long as the joyous expression lighted the old fellow's face. He soon went along to his lunch; we had some twenty minutes to wait for the next bus. I went to a small stand where coral was sold, bought a few trifles, and gestured for something bigger. The woman understood, for she ran into the house and returned with three perfect Murex sauli! Now my mother always told me that kindness and consideration would have their rewards, but who would ever have thought that in addition to "rewards" there might be a bonus -- of Murex sauli?

* * *

Just in case anyone is feeling a bit envious at this account of shells bought for pennies or Hershey bars, let me make it plain that my investment in shells cannot be measured by the initial cost, but by the man-hours it took to clean them. Orville estimated that to clean 10¢ worth of shells took about $100 worth of labor -- and he wasn't far wrong! We were in a moderate-sized house, with a small yard, and there were two babies that had to be protected from flies and filth at all costs. I tried several ways of cleaning before I decided that my only solution was to bury my shells. Huang brought in bushels of white sand (as the Taiwan clay discolored things badly) and I made a beautiful shell cemetery of a neglected flower border.

Next morning I found that "Honeybucket", the big boxer, had scratched up every shell -- and the flies were having a feast! It became an angry contest between that dog and me as to whether those shells would stay buried. I put down fine meshed chicken wire, but she scratched them out from around the edges. I weighted the edges with brick, but her big paws tossed them aside easily. I tried firewood, which held fast. But I could not lift the sound pieces -- only those partially decayed, and my interest in these pieces hit zero when my son-in-law put one on the fire and out crawled a snake which Huang identified as the highly poisonous red krait!

I have never seen animal remains as tenacious nor as evil smelling as those in my Taiwan shells. At last my problem subsided: I developed a sinus condition so severe that I lost all sense of smell! Thereafter, I worked in peace; I continued to dig up, flush out and re-bury -- and when my carefully "cleaned" shells reached Orlando they were still proclaiming their essence abroad.

NYSC NOTES NUMBER 137 DECEMBER 1967

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

However, because of holidays conflicting with our "2nd Sunday" schedule, the April and May meetings of 1968 will be held on the 1st Sundays of those months. Thus our meeting dates for the rest of this season will be as follows:

January 14, 1968
February 11, 1968
March 10, 1968
April 7, 1968
May 5, 1968
June 9, 1968

NEXT MEETING: SUNDAY, JANUARY 14th, 1967
TIME: 2:00 P. M.

PROGRAM: ALICE IN WANDERLAND with color slides
by Alice Barlow

SHELL-OF-THE-MONTH with color slides
by George Raeihle

MORE DETAILS OF THE COMING AMU MEETING IN CORPUS CHRISTI

(See NOTES No. 136, page 2, for the planned schedule July 14 - 19, 1968.)

A further communication from Anne Speers, Convention Chairman, tells us that two field trips are planned: One for the fresh-water and land collectors, one for the marine collectors. In addition -- "Texas Parks and Wildlife may do a bit of dredging for us in the bays".

Sessions, beginning July 15th, will be held in the completely air conditioned Hotel Driscoll, which is in the shopping district and only a short distance from the waterfront.....Personal notices will be sent out soon; those who will want additional, specific information may write to:

Mrs. Anne B. Speers
Box 71
Conroe, Texas 77301

(In 1967 many delegates planned their trips to take in "Expo 67" either before or after the AMU Meeting in Ottawa. In 1968 San Antonio will be celebrating its 250th anniversary with the Southwest's first international exposition, "HemisFair".....The U. S. has invited 114 countries to exhibit.....there will be fitting emphasis on the cultures and contributions of the Pan-American countries.

Seems that this is a good time to start planning for July! --Ed.)

Recommended reading:

"LIFE AT A SNAIL'S PACE"

An article by Oscar Schisgell appearing in the Dec.'67 - Jan.'68 issue of NATIONAL WILDLIFE, pages 20-23 inc., with excellent and delightful black and white photos of "a day in the life of a land snail". The text includes a description of the activities of the living _Helix pomatia_ (photos by Alvin E. Staffan), and notes from the gourmet's escargot to the study of _Helix_'s secretions by medical scientists.

Review

THE INVERTEBRATES, VOLUME VI, MOLLUSCA I
by Libbie H. Hyman

This account of the mollusks takes its place with such classics in English as A. H. Cooke's MOLLUSCS in the "Cambridge Natural History" (1895) and Paul Pelseneer's MOLLUSCA in "A Treatise on Zoology" (1906), and in many ways replaces them. It is a thorough, comprehensive account of all phases of the study of solenogasters, Neopilina, chitons and gastropods. [The other classes -- bivalves, scaphopods (tusk shells) and cephalopods (squids, octopus) will be treated in a later volume, not, however, by the author of the present work.] As in other similar studies, there is much here that goes beyond the immediate interest of the intelligent amateur, but also a vast amount of information which, written as it is in a clear, unimpeded, interesting style, will do much to deepen the understanding and appreciation of some of the most fascinating creatures in the world of zoology.

As Dr. Hyman explains in her introductory remarks, this work is compiled from the literature and is not based upon her own research results. Hence her bibliography, comprising more that 100 pages, is as extensive and complete as any student can desire. It is divided into 9 categories, so that anyone interested in, say, the prosobranchs (mainly marine snails) immediately has at hand a practically complete series of works to be consulted. However, this system makes it difficult to find any single reference immediately, since the reader cannot always guess in what category the desired reference is to be found. An added difficulty is the lack of an index for the bibliography, but this, fortunately, can be easily supplied by the reader himself.

However, this is but a minor criticism of an unusually rich storehouse of excellently presented molluscan lore, including even the history of the terms "Mollusca", "Gastropoda" etc. For the specialist there are complete and clear discussions of the embryology, anatomy, biochemistry, physiology etc. of the mollusks, but even an amateur can benefit hugely from the short but thorough discussion of the systematics, i. e. the features upon which the familial and generic divisions are based. The present reviewer found them to be clearer and more valid than many a painfully constructed key with which he has had to struggle. The discussions of the habits and behavior of the mollusks will prove enormously interesting to all people attracted by the phylum, except perhaps the most devoted slaves of the "Oh, my!" school of shell accumulators.

A few random items taken from the text will illustrate my meaning:

*Acid-insoluble shell pigments are characteristic of higher marine gastropods and pulmonates, whereas acid soluble pigments characterize the lower forms. [Perhaps that is why the color of Strombus (conch shells) fades more rapidly than Murex (rock shells).]

*The Xenophora (carrier shells) hold the object to be attached by the pro- and metapodium (parts of the foot) and attach it by means of a foot secretion that hardens to cement.

*The tentacles of the Strombidae are small, slender projections from the side of the large, well developed ommatophores (eye-bearers).

*_Thais lapillus_ (the dog whelk) attains a larger size on a diet of _Mytilus_ (mussels) than barnacles.

*The Vivivaridae and Ampulariidae (mystery snails) have lappets on both sides of the neck which can be curved into a spout to serve as a siphon. In the former it is the right lappet that performs this function, in the latter, the left one.

*_Patella vulgata_ (the common European limpet) grows a higher shell when it lives in a situation subject to periodical dessication, and low shells when they are constantly submerged.

*When the entire shell of a young _Haliotis_ (abalone) is removed, the mantle produces a yellowish exudation which hardens to a flexible and elastic membrane with a this layer of calcium underneath. The shell somewhat resembles a normal shell without the holes, but it fell off when the animal contracted. (At least that is what L. Boutan, a French observer, reported in 1923.)

But one cannot continue. Many, many pages can be covered, and space here is limited. In a word, an amazing amount of interesting, well documented information can be accumulated by simply dipping into the volume and reading whatever interests one. And by how much does the mass of information accumulated by the amateur differ from that possessed by the professional? Reference to a book like Dr. Hyman's will go far to significantly narrow such a gap.

The book is richly illustrated, many of the most beautiful drawings being from the pen of Anthony D'Attilio of the New York Shell Club.

. . . M. K. Jacobson

(Mr. Jacobson is an Associate in the Department of Living Invertebrates, American Museum of Natural History. -Ed.)

IS SODIUM ARSENITE "SAFE"?

The July-August (1967) issue of "Sea Frontiers" (which is the magazine of the International Oceanographic Foundation, Virginia Key, Miami, Fla.) carried a very good article by P. C. Trussell of the British Columbia Research Council, Vancouver, B. C. on "Teredine Borers". Included in the article was a discussion of the control of these boring mollusks by the use of the poisonous chemical, sodium arsenite: "....The next hurdle was the practical one of treating the logs in sea water without the use of enclosing drapes or other mechanical means for retaining the poisonous solution in contact with the logs. We solved this problem by introducing the chemical through a sprinkling system which slowly and uniformly distributed the chemical over the floating logs. As the poison passed over the log surfaces to the underwater portions, it completely encompassed the logs and killed all the borers on the under-surfaces......."

Mathilde P. Weingartner of the Staten Island Museum (and our own NYSC treasurer) wrote to the International Oceanographic Foundation, asking if the sodium arsenite treatment does not disturb other forms of life in the bay. Her inquiry was directed to Mr. Trussell; his reply follows:

"Sodium arsenite is a non-specific poison and accordingly its use for

the treatment of logs and other commercial structures must be carried out with discrimination. We have undertaken extensive tests not only with marine borers, but also with shellfish and larger fish to determine toxic levels for the various forms when exposed to sodium arsenite in sea water. Although fish and shell fish are less susceptible to sodium arsenite than are the marine borers, nevertheless extensive precautions are always undertaken to ensure that no damage occurs to fish during treatments to eradicate marine borers. All treatments in Canada have been undertaken with the approval of the Canada Dept. of Fisheries and in the United States with the approval of the regional pollution control authorities of the various States. Since the B. C. Research Council holds the patent on the use of sodium arsenite for the killing of marine borers, its use in sea water is kept under strict control......"

BRITISH COLUMBIA RESEARCH COUNCIL
(signed) P. C. Trussell, Director.

AN ENDEMIC SHELL SPECIES FROM LONG ISLAND

by Morris K. Jacobson

The New York City area is far from being rich in its molluscan fauna. Hence it is particularly interesting and gratifying to note that there is at least one shell species that has been reported from, and collected in, Long Island and nowhere else in the world -- a genuine endemic shell species.

The shell is Lymnaea pseudopinguis, which Dr. Frank C. Baker described in 1907. It was first brought to his attention by a Miss Mary Walker of Buffalo, New York, who found it in Crystal Brook, Suffolk County, Long Island, New York. Subsequently it was taken in Canarsie, Kings County, New York, by Mr. William H. Weeks of the famous shell collection, and at Cold Spring Harbor. The shell is well illustrated, as Galba pseudopinguis, in Baker's LYMNAEIDAE OF NORTH AND MIDDLE AMERICA, 1911, Chicago, pl. 41, fig. 6,7; pl. 42, fig. 9-13.

It is distinguished by having a slightly, instead of strongly, twisted columella, a triangular, smooth, reflected inner lip and a distinct umbilical chink. It also has very heavy growth lines and deeply incised spiral lines. Its closest relative is Lymnaea catascopium Say which, however, does not come closer to the City than Verplank, near Peekskill, about 30 miles upstream on the Hudson River.

I was interested in seeing specimens of this shell and hence borrowed the types from the Chicago Academy of Sciences who very kindly made these specimens available. I also found some paratypic material in the United States National Museum and specimens are also deposited in the Academy of Natural Sciences of Philadelphia.

My next immediate interest was in obtaining live specimens, since Baker reported that the animal, the jaw, the radula, and the genitalia were all unknown.

I could find no Crystal Brook on any Long Island map, so I decided to try to get some shells at Mount Sinai. (For obvious reasons I did not even bother to look in Canarsie.) There I quickly found a Crystal Brook Hollow Road which I followed until it led me not to a brook, but rather

a pond, separated by a low dam and spillway from a meandering tidal stream. Here I quickly found -- under thin ice -- about 50 live *Lymnaeas*. When I got home I was disappointed in finding that the shells I had collected did not have the corpulent body whorl which was so clearly shown in the figures by Baker. I decided that I had gotten the common old *Lymnaea palustris* Müller, found everywhere on Long Island. But Dr. Joseph P. E. Morrison of the United States National Museum, to whom I sent some specimens, detected the typical rough sculpture and the peculiar inner lip, and promptly called them *pseudopinguis*.

Dr. Baker noted that the shell is "probably a variation of the *catascopium* stock, produced by ... the icy cold spring water of Mount Sinai and the brackish water of Crystal Brook". These he called "changing conditions which have dwarfed the shell". (LYMNAEIDAE, p. 396.)

A geodetic survey map of the Mount Sinai region, prepared in 1904 and reprinted in 1944, does not indicate a Crystal Brook by name, but does show a long, narrow tidal extension southward of Mount Sinai Harbor which clearly is Crystal Brook. Sometime since 1904 a dam was built which set off the inner portion of the inlet and raised it about 3 feet above the outer section. Hence this inner portion is no longer affected by the tides and the water, fed by underground springs, is quite fresh. It is here that I found *pseudopinguis*.

A long search of the lower part, which has areas of fresh, spring-fed water and areas of brackish tidal water, turned up *Succinea* and *Melampus*, but no *Lymnaea*. There is no doubt in my mind that I looked for the species in the very spot where Miss Walker had collected more than 60 years ago -- "at low tide of bay fed by springs" -- but found no shells. I visited the place on a warmish December day, after a mild frost, and this may well be the reason. Nevertheless, basing myself upon the expert opinion of Dr. Morrison, I am certain that I did collect *Lymnaea pseudopinguis* which, so far at least, must be considered an endemic shell of Long Island.

In addition to a visit to Crystal Brook when the weather becomes warmer, I am also planning to visit Nissequoge River near Smithtown and Conscience Bay near Setauket which, according to the geodetic survey map referred to above, seem to present the same ecological conditions as Crystal Brook.

ON AN EARLY REPORT OF SHELLS

by E. P. Wightman

Some years ago my wife and I were members of a Great Books group which met at our Public Library in Rochester, N. Y. Among the other members of the group was a Dr. Meyer (I think that is how he spelled it; I don't know his given name or initials.) He sold rare books and, knowing that I was interested in shells, he told me of a book he had for sale and brought it to the class for me to see. I was fascinated by it, and bought it. On the inside flyleaf it has the bookplate of George W. Pratt. I know nothing further of its history.

The book is entitled THE HISTORY OF THE CARIBBY-ISLANDS, by John Davies, published in 1666. It contains a chapter (no. 19) on the subject "Of certain Shell Fish, rare shells and other remarkable productions of the sea", of which I here give a brief summary:

"...the watery Element is furnished with such a miraculous plenty, that it abundantly produces not only Fishes of several kinds fit for the sustenance of man...but also such a multitude of precious shells, and other rarities, that we may well acknowledge that the Divine Wisdom hath displayed all these rich beauties of its inexhaustible Treasures...it comes that there are found in the Waters, Stars, Cornets, Trumpets, Purcelains, Trees, Apples, Chestnuts, and all the delightful curiosities which are so highly esteemed among men. But to begin with the Shell-fish, there are in the seas about, and in the rivers of the Caribbies several kinds of them: The more particularly esteemed are the Homars, the Sea-Spiders, and the Crabs.

"The Homars are a kind of Crevices"...The author says that the natives catch them by torchlight or moonlight at night on the beaches at low tide. He says they are edible with white, pleasant tasting, but somewhat tough meat. I am not sure what these creatures are. (Ed. Note: Strombus? Or Spiny Lobster?) From his description of the Sea-Spider, I judge it to be the Horseshoe Crab.

He next describes the Crabs. He says they hide in the crannies of rocks and prey on Oysters and Muscles. Since their claws are not strong enough to crack open or crush the shells they pick up a pebble in a claw and bide their time until the oyster or muscle opens its bivalve and thrusts the pebble in and then is able to get at the body.

He says the most sought after shells are these: The Burgan, which from the illustration is the Chambered Nautilus; the Cask, or Head-Piece, which from his illustration is Cassis tuberosa.

Then comes Lambis, which is not what we know today as Lambis, but what looks from the illustration like another of the Cassididae. He says, however, "The Lambis hath haply receiv'd that name because the fish which makes it move hath the figure of a great Tongue, which licks the glutinous moisture lying on the rocks against which the waves of the Sea beat." (Ed. Note: from the Latin, lambo = I lick.) "This is one of the largest sized shells that are: One of the sides is turned up, as it were, to make the greater discovery of the fair purple colour wherewith it is beautifi'd within: But it must be acknowledg'd, that the shape being none of the handsomest, and the outer coat prickled with several rough and sharp risings, it would hardly be receiv'd into the Closets of the Curios, if Art taking off that outer coat did not discover the beauty and smoothness of the divers-colour'd shell which lay within that course shag. ...The Lambis yields a sound like that of a Huntsmans horn, and is heard at a great distance, whence some of the Inhabitants of the Islands use them to bring their people together to meals."

Next he describes the Venus-shells which he says are "numbered among the rarest productions of the Sea, whether we consider the delightful smoothness wherewith they are glaz'd both within and without, or the diversity and liveliness of their colours: Their jagged edges are turned inwards, and though all are not equally beautiful, yet they are all of the same oval figure, gaping in the midst, and turning in a little. But they are very different as to bigness and colour." Of course these shells are Cypraeidae, as is evident from the illustration.

He goes on to say: "The ordinary ones are a gilt-yellow, checker'd with little white or red spots, so as that at a distance a man would think

them little Pearls, or grains of Coral: Of the rest, some are blewish, some as it were beset with stars, some greyish, some like Chrystal, and some colour'd like Agats, which are all delightful to the eye."

There is next a description of the Sea-Cornets, which from the description and the illustration is Charonia variegata. These also, he relates, may be used as trumpets.

The author also describes a Musick-Shell, which in the illustration appears like an elongated cowry shell, pointed but divided with an aperture extending the full length of the shell -- yet from the description the outer appearance is more like the Voluta musica in pattern.

There is a long description of the production of pearls by the oyster, which he calls the "Mother of Pearl".

Sea-Egges, Sea-Stars, Sea-Trees and Sea-Fans are described and illustrated. The "Sea-Egges" are the Sea Urchins -- the common, round, short-spined ones. The "Sea-Stars" are the Starfish.

This "History of the Caribby-Islands" is in 2 books in 1 volume. The first book contains the "Natural", the second the "Moral History of those Islands". It includes a Caribbean vocabulary, rendered into English by John Davies of Kidwelly. Printed in London by J. M. for Thomas Dring and John Starkley. Dated 1666. Contains 351 pages not including the vocabulary.

GIANT HAMINOEA SOLITARIA Say

Our most unusual local find in many years was of numbers of very large Haminoea solitaria Say. On the low tide of August 19, 1967 they were found in and at the water's edge where they had drifted in with seaweed into the cove off East Bay near Jones Beach Fishing Station. The shells were to 20 mm. (3/4") in height and with a thin, orange-tan periostracum. Though all were dead and most were crushed, a sufficient number of good specimens were collected to give to the American Museum and to send to Philadelphia, Cambridge and Washington. Those with some animal tissue still within were dropped into alcohol, but it is doubtful that the small scavengers present had left enough of the animal to be studied.

Dr. R. Tucker Abbott confirmed the identification, writing: "I agree they are solitaria Say. They are the giant form from New York first named by Totten as insculpta in 1835. Sowerby records it in 1868 from New York."

Two weeks later we checked the area, again at low tide, and scrounged more specimens, mostly dry and brittle, from where they had been caught in the reeds. On subsequent trips we have found not even a fragment of either the giant or normal (to 8 mm.) form of this fragile bubble shell.

Although in previous summers we have occasionally collected Haminoea solitaria Say in this and other areas of Long Island, this is the first time we had seen or been aware of a giant form. And but for the fortunate cradling by the seaweed, these unusual specimens would undoubtedly have been completely crushed. Where did the "giants" come from? On our September 2nd trip we noticed a dredge anchored by State Channel about 3 miles from the station, and wondered if this could be a clue as to why the freshly dead Haminoea appeared at the beach.

. . Dorothy Raeihle

NYSC NOTES NUMBER 138 JANUARY 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

However, because of holidays conflicting with our "2nd Sunday" schedule, the April and May meetings of 1968 will be held on the 1st Sundays of those months. Thus our meeting dates for the rest of this season will be:

February 11, 1968
March 10, 1968
April 7, 1968
May 5, 1968
June 9, 1968

NEXT MEETING: SUNDAY, FEBRUARY 11th, 1968, at 2:00 P. M.

PROGRAM: ALICE IN WANDERLAND (Part II, Hawaii) with color slides.
by Alice Barlow

BATANGAS BONANZA (A "Shellecture" - color slides with taped accompaniment.)
by Crawford and Jean Cate

SHELL-OF-THE-MONTH
by Marian Schroth

"SHELL COLLECTING AS A HOBBY"
"COLLECTING SHELLS AND OTHER SEASHORE LIFE"
"What is in a Zoo"

You must hurry to register in any of the above classes at the Museum. We are sorry we did not receive the information sooner:

The Department of Education, American Museum of Natural History, announces Museum Courses for Adults: "SHELL COLLECTING AS A HOBBY - a series of six lectures on Wednesdays from 7:30-9:00 P. M. starting February 7. Tuition: $12.00. Specimens from the Museum's extensive collections will be used each week in this unusual series of talks introducing the fascination hobby of shell-collecting. Historical aspects, nomenclature used and a simplified classification of shells will form the basis of the lectures, but consideration will also be given to collecting techniques and the purchase and exchange of shells. Colored slides of shell-collecting areas around the world will be shown. William Old."

Bill will also conduct two Saturday morning classes for children: COLLECTING SHELLS AND OTHER SEASHORE LIFE at 11:30 A. M. for ages 10-11: "What are the shells you find along our beaches? How do you collect and identify them? What shells are found on beaches in other parts of the world? What other marine life is found on the shore? These and other questions are answered in this interesting series of talks. In addition, you will see Museum specimens of shells from all over the world, and colored slides will be shown of localities where shells are found. Instructor: William Old." Six sessions of one hour each; tuition $12.00.

Most of us know that zoos are a second hobby for Bill. His series of six one-hour classes at 10:15 A. M. is for children 8-9 (tuition: $12.00). How animals live in the wild, how they are captured for zoos, how they change their ways in captivity, color slides of many of the zoos in this country together with the animals to be found in them. (The fact that some of the creatures found in zoos have a molluscan diet is our excuse for entering this announcement in a Shell Club publication.)

PUBLICATIONS:

REVIEW

MARINE SHELLS OF THE PACIFIC

by Walter O. Cernohorsky. Pacific Publications Ltd., price U. S. circa $9.45. 248 pp. -- 444 black and white photographs, 19 text figures.

This new book contains illustrations and descriptions of 440 species of marine snails from the tropical Indo-Pacific Faunal Province. Treated are gastropods of the families Bursidae, Cymatiidae, Colubrariidae, Cypraeidae, Ovulidae, Triviidae, Muricidae, Olividae, Terebridae, and Conidae. Other gastropods, as well as the other classes of mollusks, are not included. Thus the scope of the book is considerably less than that suggested by the title. The author (like this reviewer) prefers prosobranch gastropods, and the eleven families that are treated are well covered.

Since many of the species treated occur from East Africa through the Indian Ocean and into Polynesia this handbook should be of value to any one endeavoring to identify shells (of these families) from almost any place within the tropical Indo-Pacific. A few of the specific determinations and some of the synonymies are open to question. The citing of tropical species "from New Zealand" is in error and is apt to be misconstrued by the novice.

There are several introductory sections, including such subjects as: the New Collector, Origin of Mollusca, the Use of Shells, Early Collectors, Collections and Expeditions, Classification of Mollusca, the Shell and Animal, Removal of the Radulae, Collecting Techniques, and Arranging a Shell Collection. The Section on Photography of Shells is excellent.

. . . William E. Old Jr.

THE COWRY

We are pleased to learn that Vol. II, No. 1 of THE COWRY is now available. This issue of 16 pages (no illustrations) contains several scholarly papers on the classification of Cypraea and on particular findings of East African specimens. Price: 85¢ plus postage.

The publication is edited by Lt. Col. R. J. Griffiths, Ret. (now of New South Wales, Australia) and printed in England. His American representative is E. L. Fobes, 3747 Sacramento Avenue, Santa Rosa, California.

Locally THE COWRY may be obtained from Hano's, 1598 Third Avenue, New York, N. Y. 10028. Mr. Hano also has reprints of Vol. I, Nos 1, 2, & 3. He will handle mail orders.

JUNIOR SHELL CLUB ORGANIZES

Under the above heading, an article in the "Henrietta Post" of November 16, 1967: "A Rochester (N. Y.) Junior Shell Club has been organized under the sponsorship of The Rochester Shell and Shore Club, with Mrs. Berniece Plummer, 47 Tulane Pkwy., acting as the organizer.

Meetings will be held on the first and third Saturday mornings of each month at the City Recreation Center, 740 University Ave., Rochester, from 10 to 11 a.m. ... Children from the ages of 8 to 18 may join. ... The president of the new Club, Robert Lawson, 896 Highland, can supply information."

A LOOK AT
SOWERBY'S THESAURUS & WESTERN ATLANTIC MOLLUSKS

by Gordon Usticke

I feel that I am well acquainted with practically all Western Atlantic mollusks, excepting South American shells where my knowledge is sketchy.

Having acquired - at considerable expense - a copy of G. B. Sowerby's Thesaurus Conchyliorum (5 volumes, 1847-1887), I naturally looked to see what Western Atlantic shells were listed. At first I was very disappointed; the listing seemed very sketchy, and incomplete, and I began to think I had wasted my money.

Then, one day, I decided to try a new approach, and so I took one large family and listed out, on a sheet of paper, all the species that I knew of, then carefully checked off all the shells that Sowerby had listed as coming from the Western Atlantic area. This left big gaps -- about 60% of the shells I had listed were unaccounted for and, also, there were some shells listed by Sowerby that I felt sure were not Western Atlantic.

Next I carefully checked over all the shells marked "habitat unknown" and among these I was able to find several of the missing ones, but this still left quite a few gaps in my list. I took each of the still unaccounted for shells, one by one, and very carefully went over all the illustrations, one at a time, and behold! -- the gaps started to fill in, and by the time I had completed the process practically every missing shell had been accounted for, though several had queer habitats, such as "China Seas", "Philippines", etc.

Now for the explanation as I imagine it: Sowerby had access to the collection of Hugh Cuming, undoubtedly the finest and, at that time, the most complete in the world. Cuming undoubtedly made great efforts to get everything, and to a considerable extent was successful. But in the old days collectors and dealers were very secretive about where their shells came from (some still have not quite lost the habit), and they would often give misleading habitat information to foil and confuse their competitors.

After that I gave the same careful treatment to other families and in every case the same pattern came to light. All the shells were there, but often disguised in some manner. It was then that I came to the realization that Sowerby's Thesaurus was a much finer and more complete compilation than I had suspected. His illustrations, despite their small size, are remarkably accurate.

After I had been over several other families I decided that the only gaps unaccounted for seemed to be due to one of two main reasons:

(1) Either the shell was so rare that Hugh Cuming failed to get it;
(2) It was so similar to another shell that it was not considered to be a different species.

That leaves the shells which Sowerby lists as from the Western Atlantic but which I did not recognize. I feel sure that, in most cases, these are a part of the attempt to mislead which was then so prevalent.

(Editor's Note: It will be of value if member Usticke were to list the Western Atlantic shells with the wrong data given by Sowerby. --MKJ)

THE GENUS RAPANA IN THE BLACK SEA

by Morris K. Jacobson

In No. 130 of these NOTES (March, 1967), I wrote some comments on the reported presence of Rapana thomasiana, an Indo-Pacific muricid (rock shell) in the Black Sea. I pointed out that as late as 1916, in the list of Prof. Milashevitch, no Rapana appeared. I also expressed doubt as to the reported method of its transport, if indeed that had taken place.

Recently Dr. Kenneth J. Boss of the Museum of Comparative Zoology called my attention to an article in the magazine ECOLOGY in which E. I. Dropkin discussed this topic. The article was a translation of Dropkin's work which had appeared in 1963 in Dakladye Akademii Naook (Reports of the Academy of Sciences USSR) #151:700-703. The article stated that the Rapana (here mistakenly called R. bezoar) had first been found in the Black Sea in 1947 where it had apparently been accidentally introduced with seed oysters. It flourished exceedingly in its new home and in a short time practically destroyed the native and other oysters of the region. And other interesting ecologo-zoological changes took place.

As Dropkin reports, there was a hermit crab in the Black Sea that had always been considered distinct from a related form in the Mediterranean Sea, chiefly because of its much smaller size. It had been felt that this smaller size was the result of the lower salinity in the inland Black Sea. Suddenly, however, the typical, large-sized Mediterranean species began to show up, always inhabiting the shell of a Rapana. Previously the Black Sea hermit crab had had only the small shells of Nassarius (basket shells), Cerithium (horn shells), or Gibbula (small top shells) to convert to a moving home. Now that the larger Rapana shells showed up, the hermit crab grew to fit it. In other words, it had changed its species. A distinction that had been thought to be chemical turned out to be simply mechanical.

Other changes took place. A sand eel suddenly increased tremendously in numbers. It was soon discovered that it had learned to feed on the eggs and the young of the Rapana, a new and abundant food source, based primarily on the consumption of oysters. Now, the sea carp, which normally fed on the oysters and other slow moving bivalves, was suddenly found to be dining extensively on the now numerous, fast moving sand eels. This did not agree with the books which had put the sea carp down for a fat, stupid, sluggish ground feeder. Anyway, the carp increased in numbers and the carp fishery -- carp is a favorite in much of Europe, where it frequently takes the place of our turkey at Christmas -- flourished abundantly and began to replace the rapidly declining oyster industry.

Dropkin feels that the changes brought about by Rapana have not yet run their course. Other changes, some good, some bad, will surely take place.

Hence: Species A appears, flourishes, practically destroys species B, thus depriving species C of its normal food, who now begins to dine on species D -- changing its habits and reputation to do so -- which began to flourish because it fed on the eggs and young of species A. Meanwhile species E changes its species because it can use the shell of species A to grow big in. Of such matters is the stuff of evolution made.

There are those who have the impression that all there is to collecting shells is in simply "going someplace". 'Tain't so. A personal letter from Mrs. Kitti Westfall of Pinellas Park, Florida, contained such a vivid account of her trip to the Grenadine Islands, W. I., that we requested, and received, permission to reproduce it here. (--WEO)

SOJOURN IN THE GRENADINES

September 8th, 1967

Hello there!

I have just received your letter dated July 7th and also the very exciting package of Euplectella speciosa! Thanks! I'd better explain why it took this long for me to get the letter and the package.

You may remember that just before the shell show last February my husband passed away very suddenly and I was expecting a new baby the end of August. Well, the problems just became monumental and I felt I had to run away or crack up completely. I ran.

St. Vincent in the West Indies was as far as I could go without a vaccination. I discovered I couldn't afford the rents there and eventually we (the children and I) found ourselves on Bequia. I was extremely lucky to locate a little house which had a rent based on the local economy and not on my nationality. We moved in and settled down to a new way of life.

To get to Bequia is an adventure. The only way is by boat. The typical inter-island boats are dilapidated old wrecks. We went aboard the HYROON, which is the name the ancient Caribs gave to St. Vincent, and from the looks of the boat they were around to name that boat, too! Like all the other boats we traveled on, this was under hand sewn sails; even the pulleys and tackle are carved from wood by hand; all repairs are makeshift and maintenance and safety unknown. They are all cargo vessels -- passengers are a side line. In these waters there are no 'strictly passengers' boats at all. They load huge fuel drums, crates, boxes, sacks, household goods and even livestock by hand labor. It is not easy to get on board and only my obvious condition gave me the assistance of the boatmen. The goats and I were all pregnant and received very careful handling!

The water is always rough. I've seen small craft warnings up in the Gulf of Mexico when it was calmer water than it is here on a fair day. No trip for the fainthearted. The only concession made for passengers are three rusty basins -- passed freely around for seasickness. There are never enough basins to go around and it gets pretty messy. I have a strong stomach or I never would have been able to get to all the places I did.

I wanted to see all the islands in the Grenadines and everyone told me that this is only possible by chartering a yacht (at $500 a week). Well, I managed it by riding in work boats, mail boats, and fishing boats. Not safe or comfortable, but certainly cheap enough! I have been to every inhabited island in the Grenadines all the way to Carriacou. My travels off Bequia took two weeks of the three months I was there. For an agile man it would have been raw adventure....for an old lady in the later weeks of pregnancy it was insanity....and I loved every minute of it! I kept a lot of notes and took a lot of pictures and have enough

material for a book which I'll never write.

Our life on Bequia was very quiet and primitive. The island is small and has no electricity. We lived in a little house on a mountainside overlooking a beach that looked like a south sea movie set. It was a tiny house, but adequate for the kids and me. It had a small kerosene refrigerator which seldom worked, a bottled gas hot plate which always worked, and the unreliable plumbing which is standard in these islands.

Food was a problem as we never did adjust to the local diet of rice and fish heads. Everything must be shipped in, and it is all very costly. I paid $1.10 for cornflakes, eggs were 12¢ each, chicken WINGS were 90¢ a pound, and this gives you some idea of why living on a remote island is not exactly paradise. Even bananas had to be shipped in. The local people grow only enough stuff for themselves -- nothing to sell. I'll never complain over American supermarket prices again!

When the boats come in with a catch they blow a conch horn and everyone runs to the harbor to buy fish. It all sells for 40¢ a pound and when you consider that it is not cleaned it isn't as cheap as fish in Florida.

Our milk was bought in whisky bottles -- some with the labels still on them! No, the dairyman isn't a big drunk -- he just has a lot of drunken friends! It was badly watered down and I boiled it at home. It cost 14¢ a bottle and the supply was very very limited.

The island is very mountainous and the roads just unbelievable. No engineering. They use a few Land Rovers for transportation. Gasoline is $1 a gallon so every ride is both expensive and hazardous. Everyone walks. Up until five or six years ago there were no vehicles at all on the island. Just donkeys. It's not easy to carry every bite of food up the hill and I had to hire a girl to help me because of this chore. I paid her $10 a week (West Indian money) for seven days a week and she was supposed to do everything but I kept her busy just hauling stuff home up that hill.

The hardest thing to do without was ICE. When I could buy it, it was 50¢ for a few little chunks which we brought home in a picnic jug. The kids and I began calling ice "West Indian diamonds" -- it was that precious.

It's hard to realize that there are still places left in the world where the people haven't seen a TV, a traffic light, a washing machine or even ice cream. A big social event is a ship launching. They build the ship all by hand right on the beach. I was lucky to be there in time to see one. The vessel was a 60-ton cargo schooner intended for the inter-island trade. Took over a year to build. They launch it by tipping it on the side and by man power alone they push and pull it -- inches at a time -- through the surf and out deep enough to float. The men sing a sea chant to keep together. It's very exciting to watch!

In the heart of the Grenadines, on a little island without even mail service, I found a Swedish housewife living alone in a fort on top of a rocky mountain peak. It would take pages to tell about that! But anyhow, I did find a shell there, and shells being very very scarce I was delighted. It was only a Patula purpura but a nice big one. That night in a "hotel" on Union Island I asked to boil it in the kitchen.

When it was cooked I pulled out the animal and wrapped the flesh in a piece of paper to throw away. The shell and operc were on the table and the kitchen girl quickly grabbed both and pitched them in the garbage. I was stunned -- and immediately began pawing in the garbage to retrieve the shell and operc. She picked up the animal which I had wrapped up and asked if that wasn't what I wanted. I finally convinced her it wasn't, and I did get back my shell and operc. So she asked if she could have the paper-wrapped animal. I said "Yes" and she promptly unwrapped it and popped it in her mouth! Licked her lips and said "Ymmmmmm"! These Patulas have a deep purple dye and I can't see how anyone could eat the whole animal, viscera included. (Ugh!)

The biggest disappointment was the lack of shells. I came back with very very few and nothing to brag about. The boys I asked to dive were just determined to collect Strombus gigas -- and juveniles at that. Even showing them pictures in my "Caribbean Seashells" book didn't help. I was discouraged. The water gets so deep so fast around the islands that diving is a "must". But they never got anything worthwhile for me. They eat everything, even chitons -- they call them "flatbacks" -- smash them up and fry them into little cakes with meal and onions. The commercial conch divers must go to fantastic depths -- up to 16 fathoms -- because the big food conchs (Strombus gigas) have been virtually wiped out in more accessible waters. They have no idea of conservation, so not much is left. The turtles are wiped out and soon the lobsters will be gone. They have a closed season which nobody pays any attention to at all. They even kill sea birds and take the eggs -- so there are few birds left. Even what they don't eat they kill for fun. The kids are very bad about this. No crab, lizard, or baby bird can escape their cruel hands. The hardest thing for me to take was the way they hunt porpoises. There aren't many left, but once a family came into the bay below my house -- mother, father, half-grown son and a small baby. About twenty boats surrounded them; they kept throwing harpoons until the water was red. I felt sick. Baby porpoise is a delicacy. Horrible.

The medical situation on Bequia would take pages to describe and then no one here would believe me. The hospital is fantastically filthy (goats and chickens wander in; no doors, no screens, no glass, flies everywhere) and the interested townspeople can watch through the open window when the doctor operates. The midwife told me she has to make sure that the new mothers suffer a bit or else nobody will atend the family planning clinic. So at the last minute I chickened out and came home to have the baby.

The trip home was another adventure....no confirmed seats....a mass of confusion....in one day we hopped all over the West Indies and because of all the mixup I entered the U. S. without ever going through customs -- something I heard was not possible to do! I got home on a Wednesday night. My new daughter arrived on Saturday morning, September 2nd. She has a lot of red hair and is a real doll!

I didn't look at the mail here until last evening, which was when I delightedly discovered your package of the "Venus Flower Baskets" and also your letter. Please forgive me the delay in thanking you. I hope this letter will not only explain the delay but will be of some interest to you -- if you are wondering about shelling in the Grenadines. Thanks again.

Your friend,

Kitti

TONY MARSH

Word has reached us of the sudden passing of Tony Marsh, author of "Cone Shells of the World".

Although an amateur, he was considered an authority on Conus, having described several species. At the time of his death he was planning further publication, on Australian species.

WEO

Jan. 2, 1968

DEAR MR. QUESTION BOX:

The Hawaiian Shell News of November, 1967, says
(a) a pearl has been found in an OPIHI
(b) pearls have also been found in STROMBUS and HALIOTIS.

Would you please tell us
(a) What-in-xxxx an OPIHI precisely is
(b) What other animals produce pearls -- and why?

Cordially -- Jo Z.

(a) OPIHI is a native Hawaiian word referring to limpets, particularly to these species, which are eaten commonly: Patella sandwichensis Pease, the shell of which grows to 2", Cellana melanostoma Pilsbry - to 2½", and Patella talcosa Gould - to 4". (They are eaten raw, sucked in a single, sharp inhalation out of the shell.*) Many deaths are attributed to the fact that these limpets are sought after for food, as they live in the roughest, rockiest areas, where the surf dashing on the rocks makes collecting extremely hazardous. (This type of rugged shore is aptly called by native Hawaiians, "opihi-pickers' paradise" not so much because the edible opihi lives there but because so many opihi-pickers have been swept off the rocks and drowned.**)

(Our thanks to Neal Seamon for this information. The quotes from Gilbert Rogin*, Sports Illustrated Aug. 20, 1962, and Cliff Weaver**, Hawaiian Shell News, Feb. 1, 1963.)

(b) All shell-bearing mollusks are capable of producing pearls. They are produced as a result of a foreign body (a grain of sand, a fragment of coral or shell, anything!) becoming embedded in the animal's tissue. Whereupon the mollusk coats the irritating particle with the same material, chiefly calcium carbonate, which lines its own shell. Thus a mollusk which builds a nacreous lining (such as in Pinctada) will produce a beautiful iridescent pearl -- while the pearl from a shell with dull interior (such as some clams) may have the same drab hue as that shell's interior. ... (See also "Mikimoto's Pearls", NOTES No. 99 -- Ed.)

OOPS! In NOTES No. 137, December, 1967: Page 3, line 12: Please correct the text to read "a thin layer of calcium .." (Makes more sense, doesn't it?) And in NOTES No. 135, October, 1967: Page 2, line 4 and thereafter when mentioned -- the research vessel is named "Eastward" and not "Eastwind" as we had reported.

Please let us know of any inaccuracies or omissions in the accompanying "Supplement to Roster".

DR

JANUARY, 1968, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome these new members and bring you to date on address changes received since our June, 1967, Supplement to Roster.

(* denotes family membership)

NEW MEMBERS

ANTONSANTI, Mr. Jose'	c/o I. Santiago, 90 Paladino Avenue, New York, New York 10035
DE WIND, Mrs. Adrian	37 West 12th Street, New York, New York 10011
FLECKLING, Mrs. Walter	Lloyd Neck, L. I., New York 11743
HAGERTY, Mr. Timothy	237 West 11th Street, New York, New York 10014
JENKINS, Mr. M. C.	Live Oak Meadow, Pebble Beach, California 93953
JENSEN, Mr. Russell	35 Hoover Avenue, Bloomfield, New Jersey 07003
JOSEPH, Miss Judie	41-29 75th Street, Elmhurst, New York 11373
KOSTELNICK, Joseph	697 Hawley Lane, Stratford, Connecticut 06497
LEHMAN, Mrs. Eleanor	544 N. E. 75th Street, Miami, Florida 33138
MELDRIN, Miss Robin	Old Sterling Road, Warren Township, New Jersey 07067
ROTHENBUECHER, Mrs. E.H.	140 East 83rd Street, New York, New York 10028
SNYDER, Mr. William B.	7 Hemlock Road, Bronxville, New York 10708
SOUTH PADRE ISLAND SHELL CLUB	c/o Mrs. Homer Poe, Pres., Box 355, Port Isabel, Texas 78578
STARK, Mrs. Cherita	43-57 Union Street, Flushing, New York 11355
THOME, Mrs. Doris THOME, Mr. Mark*	4 Scott Court, East Setauket, New York 11733
WIGHTMAN, Mrs. Eugene P.	85 Harding Road, Rochester, New York 14612
ZUCKER, Mr. Mark J.	527 West 113th Street, New York, New York 10025

CHANGES IN ADDRESS:

ABRAMSON, Dr. Joseph	20 Plaza Street, Brooklyn, New York 11238
ATKINS, Mr. & Mrs. Martin	174 East 90th Street, New York, New York 10028
BOSCH, Dr. Donald T.	8497 Byron Center Avenue, S. W. Box 148, Byron Center, Michigan 49315
BRITZ, Mr. Steven J.	Whitney Plaza Apts., No. 442, 32 Whites Avenue, Watertown, Massachusetts 02172
GOLDEN, Dr. Joseph	Richmond Professional Inst., School of Social Work, 901 West Franklin Street, Richmond, Virginia 23220
LEE, Dr. Harry G.	1766 North Decatur Road, Cottage T, Atlanta, Georgia 30307
LEWIS, Dr. John R.	1065 Norbury Avenue, Lombard, Illinois 60148
MERRILL, Mr. Arthur S.	Box 238, Route 4, Easton, Maryland 21601
SEFERS, Mrs. Anne B.	Box 71, Conroe, Texas 77301
STEPHENS, Mr. & Mrs. George W.	568 Longfellow Avenue, Virginia Beach, Virginia 23462
YAGER, Mrs. Joseph	200 Mount Pleasant Avenue, West Orange, New Jersey 07052

NYSC NOTES NUMBER 139 FEBRUARY 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Recording Sec'y
ANGELA SAVINO

Historian
NICK KATSARAS

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY *

However, because of holidays conflicting with our "2nd Sunday" schedule, the April and May meetings of 1968 will be held on the 1st Sundays of those months. Thus our meeting dates for the rest of this season will be: MARCH 10th - APRIL 7 - MAY 5 - JUNE 9, 1968.

NEXT MEETING: SUNDAY, MARCH 10th, 1968, at 2:00 P. M.

PROGRAM: THE WORLD OF CHITONS (with color slides)
by William E. Old.

SNAILS IN LITERATURE
by M. K. Jacobson

SHELL-OF-THE-MONTH
to be announced.

SHELL-SOCIAL SCHEDULED FOR APRIL 7th.*

At our February meeting the members present unanimously accepted the opportunity to hold another of our "Shell-Socials". We are again grateful to Dorothy Jensen, who offered the use of her dance studio for the affair.

This informal meeting is scheduled for Sunday, April 7th. The place: the Broadway Dance Studio, Broadway at 31st Street, Astoria, Queens -- only twenty minutes from Times Square. (Full directions in our March issue.) We are planning an auction of donated shells, a film, raffles, a refreshment hour and buffet supper.

This is your opportunity! You have found just the right place for those good "extra" specimens, those shells that you no longer need, the interesting shells (such as those *Strombus taurus*, Glory-of-the-Sea, Golden Cowries, etc., etc.) that have been taking up space or just gathering dust. Your donations will be happily accepted by the committee (1) at the March meeting, (2) by mail to George Raeihle, (3) at the studio on April 7th. Literature and related items are also wanted. No item too large (as long as you can carry it) and none too small -- an interesting auction depends on you. And as we also plan to have a bargain table, don't consider any item too insignificant.

As at our previous socials, guests will be welcome on payments of dues ($3.00) entitling them to full membership for one year.

THE AMERICAN MALACOLOGICAL UNION OFFERS YOU THE OPPORTUNITY to join a flight ($307) and/or tour ($306) August 31 - September 23, 1968 to include: Attendance at the 3rd European Malacological Congress in Vienna September 2-7, a post-Congress tour September 8-19 with sightseeing highlights and shell collecting at a variety of stops, particularly Lake Ohrid and the Adriatic. Eligibility restricted to AMU members, members of AMU-affiliated shell clubs and their immediate families. Memberships must have been effective at least 6 months prior to August 31st. Registrations close May 20th. For registration and brochure apply to Dr. Alan Solem, Field Museum of Natural History, Lake Shore Drive and Roosevelt Road, Chicago, Illinois 60605.

The following article appeared in the Wellington Shell Club's "Bulletin" No. 5. We reproduce it here with their kind permission and our thanks to the author:

SHELL COLLECTING AT SINGAPORE

by Mrs. Anne Firth Murray

For the professional shell collector, Singapore is certainly not an excellent hunting ground. But for an amateur, willing to wander and poke, a shell collection that is representative of most species of the Indo-Pacific can be assembled from Singapore shores over a period of time. Singapore Island has a sandy shore extending along the south east coast; elsewhere the shoreline is rocky with some areas of mangrove and muddy swamps. However, around the adjacent islands of Singapore, there are several good coral reefs; in addition, there are a number of reefs that are 'walkable' only at low tides. I have found that the best hunting grounds for shells are these 'walkable' reefs that are seldom exposed. Here one can walk or dive down the edge of the reef, either with mask and snorkle, or with air tanks. My collection has been gathered not from the depths, but from the areas where it is possible to walk or dive in shallow water. The 40-60 ft. depths house larger and more unusual types of shells than those found in the tidal area: beautiful cones, sometimes venomous (eg. Conus textile, Conus geographus) and the larger cowries.

My collection is made up of the commoner shells of Singapore. It includes several members of the Strombus group, including Strombus urceus, S. vittatus, S. isabella, and the large scorpion shell Lambis lambis. These animals are interesting to keep in a small aquarium because they jump about on their very strong foot, grazing on algae. They are all quite common in Singapore. Murex adustus, Bursa rana, and Natica shells are also very common, found clinging to the sides of rocks. Many collectors in Singapore specialise in one type of shell, the cowry (Cypraeidae). These are found commonly on the undersides of rocks, and occasionally one of the larger cowries is found in Singapore; most common, however, are the smaller species. Naturally, on the rocks in the tidal zone, millions of periwinkles and neritids wander; these are almost too common to collect, and are not particularly colourful. Very numerous too are the turban and top shells, and the star shells (Turbo intercostalis, Trochus niloticus, Astraea stellata), but to find a large and colourful specimen of any of these is not an easy task.

Among the most beautiful of shells are the cones; unfortunately, they are usually covered with algae and hard to see; still, there is an element of adventure in collecting cone shells, because one never knows until one cleans the shell whether a very unusual or just a common specimen has been found. That is why it is always very important to pick up a cone shell by the wide end, because there are several venomous species - usually the most beautiful cones - which are deadly to man. The cone animal has a built-in harpoon which springs out to attack and kill the animal's prey, injecting poison which is immediately effective; in fact, all cones are venomous but only a few are toxic enough to kill man.

Another beautiful shell, found usually on sandy reefs, is the olive shell, or Oliva. This is extremely localized in Singapore, being found in quantity on a particular sandy reef, off the southwest coast of Sing-

apore Island. Naturally, olives are found elsewhere, but the fishermen along that coast of Singapore stoutly maintain that olives are found only on the 'sandbar' which is a rather small sandy reef, only exposed at low tides. I have found olives only on that reef.

One of my favourite shells is also extremely localised; it is the heart cockle, and is a shell hard to see, because it tucks itself into crevices of rock and is usually covered with algae. I have found about eight of these so far; all of them were found on one small reef, off the southwest coast of Singapore. Undoubtedly these can be found elsewhere, but the fishermen say that that is the 'heart cockle reef', and from my experience, I would agree.

On the 'heart cockle reef' I have also found two lovely univalves: *Voluta scapha* and *Cymbium melo*. These were live, travelling at some speed along the reef. They are not rare - in fact *V. scapha* is considered the shell of Singapore - but large specimens are not common.

An area which is profitable for collecting empty shells is a rather dirty stretch of beach on the southeast side of Singapore Island itself - Changi. This area is so mucky that the only creatures you find here are shell collectors, hermit crabs, sea slugs, starfish, and the scavenging sea urchin. However, one saving grace is that the hermit crabs sometimes have very good taste in architecture; they carry with them to Changi some of the loveliest shells. Here it is quite common to find *Voluta scapha* and various *Strombus* shells. I have also collected *Melongena pugilina* here, though I've never found it alive. The common bivalves are in bulk here: *Gafrarium*, Venus shells, Cockles and ark shells. If the collector is lucky, he will find live cockles in the tidal area stretching from the Changi shore.

Obviously, I could continue for pages about the various shells one can find in Singapore, but I do not intend this to be exhaustive or exhausting; rather, it is an account of my own collection, gathered over a period of about eighteen months. My main interest is not in shell collecting, but reef diving, and I am a collector of corals and live creatures of the tidal zone. One shell that I always like to have live in my aquarium is the common barnacle of Singapore (*Balanus amphitrite*, *Balanus amaryllis*). It is fascinating to watch these creatures feeding with their graceful feeding feet. I have had several live *Tridacna* clams in my tank too - not the giant ones of course, but specimens about 6-8 in. long. These dramatic bivalves (*Tridacna squamosa* and *Tridacna crocea*) are spectacularly coloured inside, when alive. It is an exciting experience to see the huge *Tridacna* clam set down among the coral in the reefs, usually below the low tide level. One day, snorkling over a reef, I saw a gorgeous green and purple creature ahead, between two clumps of coral. As I glided over it, it snapped shut, responding to my shadow undoubtedly. That shell was about 4 ft. long, and they grow larger than that.

Shell collecting in Singapore is not the sort of beach-combing activity that it can be in the Philippines or in northern Australia. Particularly the more colourful univalves are quite hard to find here, and are usually collected alive, covered with algae, rather than shining and bright on a sandy beach. This means that the shell collector in Singapore should go out armed with sturdy shoes for walking on the sharp coral reefs, for there is also the danger of stonefish and catfish which respond

when stepped on by ejecting poison through spines on their backs. These fish lie, looking like rocks, on the reefs, just in the sort of area where the avid shell collector will be looking for Lambis lambis or Volutes. These fish and the cone shells are things to watch for, although, of course, at slightly greater depths (about 5-15 ft.), one encounters sea snakes (docile, sleepy creatures), which can be deadly to man, and sea urchins whose spines can inflict pain but not real sickness. There is no doubt, however, that these minor dangers, easily guarded against, do not outweigh the great pleasures of reef collecting in Singapore. It is glorious to be out on a hot day, wondering what treasure will next meet your eyes; it might be a shell that you've never found before, or it might be a beautiful anemone, coral, starfish, fish or nudibranch, which all abound along the shores of the Singapore Islands.

In January's QUESTION BOX: "Would you please tell us (a) What-in-xxxx an OPIHI precisely is?" Species names of this edible limpet were taken from "Pacific Sea Shells", a popular book by Spencer Tinker, published in Hawaii circa 1952. Mr. Old brings us up to date:

OPIHI PAU*

In reply to the "Question Box" answer in NOTES 138, p. 8: No Recent species of the Genus Patella occur in the Hawaiian Islands. The shells of limpets of this genus are usually thick, solid, and have a porcellaneous interior. Species of this genus abound on the South African shores and in the Mediterranean. Smaller species inhabit the Western Pacific and Patella mexicana, the largest species, occurs along the western coast of Central America.

The generic name Cellana was proposed by H. Adams in 1869 for a group of (usually) thin-shelled limpets that have a metallic glaze internally. There are anatomical differences that distinguish this genus from Patella. Helcioniscus Dall, 1871, is synonymous.

Two Recent species inhabit the Hawaiian Islands: Cellana exarata Nuttall, which has a silvery shell with raised black ribs on the outside. It is figured in HAWAIIAN SHELL NEWS, November, 1967, under the Hawaiian name, "Opihi". It is cited in Spencer Tinker's PACIFIC SEA SHELLS and in NOTES No. 138 as "Patella" sandwichensis Pease, a later synonymous name.

Larger in size is Cellana argentata Sowerby, which is similar to the preceding species, but the shell has a reddish sheen. It is cited in Tinker's PACIFIC SEA SHELLS and in NOTES No. 138 as "Patella" talcosa Gould, a later synonymous name.

Anyone attempting to eat specimens of the fossil shells cited by Tinker under the name Cellana melanostoma Pilsbry would lose their teeth. The protein value is nil.

W O

*"Pau" is the Hawaiian word for "finished".

WINTERTIME SHELLING IN NEW YORK AREA

There has been some erosion of our ocean beaches; Spisula solidissima has been toosed ashore in uncountable numbers, with many Lunatia heros, egg cases of skates, and some Polinices duplicatus.

SHELLING ON LITTLE CAYMAN ISLAND, B. W. I.

by Ethelyn Woodlock

Last winter Dr. Jane Schick asked me to be her guest at the Southern Cross Club. We met in Miami and took a private plane to the little grass air strip on the nine-mile long island of Little Cayman. Jars of alcohol, coffee tins, snorkel gear landed with us. The former left filled to the brims but the latter was never used. It was better and faster shelling turning over the reef rocks. Moreover, the bay was filled with sting rays, with an occasional barracuda. The few Club guests were mainly interested in wahoo and bone fishing so we had a whole island to ourselves as far as shells go.

While the shells found were no different from the Grand Cayman trip the year before, it was quite different shelling. Being so small, we just DID the whole island, or nearly. The best way to shell is to exercise where there are no beaches, - just rocks and more rocks, jagged tops and hollows. IF one were to fall, I hate to think of what might happen!

The very first day we hiked to Bloody Bay on the North Shore, all the time hoping to fall into a pot hole filled with buried treasure that is supposed to be in that area but has never been found. We didn't fall, didn't find treasure, but found more of the same rocks on the shore line and when night came we were exhausted.

We went to tiny Owen Island in the bay and walked around it many times, finding so many species. Also found octopus holes. These creatures collect the BEST shells, as one can tell if one has ever picked shells from in front of a hole filled with wiggly legs!! I didn't do much poking, not knowing how long those legs might be! The outer reef came quite close to the island but we didn't dare risk a very strong current, so went to the reef by boat at many later times. We had the same guide all week, a native who knew his localities and how to get to them.

And this is the very best way to collect: just keep breaking your back, turning hundreds of heavy reef rocks. We took the manager and others over one day and gleaned enough *Cittarium pica* for a mess of potage! *Conus* and *Cypraea* were in great profusion and I hopefully thought we had found *C. abbotti*, but when cleaned they were only *mus*. Jane *had* found one quite good specimen of *abbotti* on Little Cayman on another trip.

If shells are abundant in the depths and on the reefs, it makes no difference what the shore is like. They pile up on the rocks as well as a beach! At Preston Bay we walked the high rock line and there were so many good ones tossed up by the waves that we went along step, scream, stoop, another step, scream, stoop. Many, many *Cypraeacassis testiculus* in mint condition were high up, and down by the tide line there were many live specimens, also my favorite *Purpura patula*. In this bay, in a tide pool, I found one lonesome *Janthina janthina*, quite dead.

Asaphis deflorata in heavenly color forms were abundant right in front of the Club. This small beach was walked at sun-up before the guide took over. Here I found my first *Heterodonax bimaculatus*, so many of them like sudden butterflies poised for flight.

The day we went to Point of Sand will never be forgotten. We started out in fine style by boat and expected to be there in an hour. Cuts in the reefs allow the boats to go through but Marvin, our guide, did not count

on such a low tide. In fact, he said he'd never seen it so low! So we would sit in the boat and wait for a high surge to come to push us off the rock the boat was stuck on. If it didn't do the trick, we'd get out and do our own pushing, then hop in and motor along slowly until we hit the next rock. Marvin really was embarrassed. We finally gave up and docked the boat on a sand dune and hiked. But all our efforts were for naught! Outside of a few *Tellina radiata*, one live, fuzzy *Cymatium nicobaricum*, all we found were reefs covered with *Fissurella barbadensis* which we picked and cleaned for the New York Shell Club members.

The next day we nearly drowned! Marvin again was embarrassed, getting two such nice ladies SO drenched! The bay was smooth as glass but we could see high waves outside the reef. The manager shook his head - "Be sure to take two motors". The waves seemed all of twelve feet high once we ran around the point. We'd ride up and slap down, getting completely covered with real water, not just spray. Jane was really worried, Marvin was too busy to talk; we turned shoreward and rode with the waves, and after we passed the reef all was smooth again.

We walked miles along Jackson's Point and Grape Tree Bay. Rather, we *climbed*, up and down more rocks, with an occasional bit of sandy beach to give us courage for the next mountain of rocks. Jane found a beautiful, HUGE *Conus regius*, I found a beat up *ranunculus* and gasped at the beauty of two pairs of *Chama macerophylla*, the deepest yellow, with a tinge of purple, that I have ever seen.

Around 38 years ago a tidal wave went over the island, killing all in its wake, including all of Marvin's relatives except his mother who had him hidden in a cave on Cayman Brac. Since then the 20-odd natives live in a little village down the beach called Blossom Point. All of the adults work for the Club. Ye Pond is the result of the hurricane and is just behind the Club, and at low tide it SMELLS. Ye Tarpon Pond is a little further away and is still salt water and is solid with huge tarpon. The guests go over to fish them and then put them back. Same with the bone fish. All I can say is WHAT a way to fish, I'd rather go shelling. At least we could take home our finds, including 140 species.

Grand Cayman has towns and roads and many swank places to stay, cars, jeeps and all sorts of things in addition to the primitive. Little Cayman has just the one Club, one road leading to the air strip, and that's it. The Club is new and modern and the food is yummy, but they can accommodate only around 35 people -- so you can see why the island is unshelled.

Jane and I hoped for a wonderful Little Cayman trip and we had it. My only regret is that I didn't take more film with me. I wish I could have pictures of that high wave ride -- no one will believe us. But at least I have pictures of that low tide day -- and we are still laughing.

* * *

We picked up a few land shells:

- Cepalis varians
- Chrondropoma caymanese
- Holospira cerion
- Trisoplita pallens
- Pleurodonta dentellaria

And a Sloarcana that Bill says was washed over from Jamaica.

LITTLE CAYMAN, B. W. I., MARCH 18 - 25, 1967

Living species are asterisked (*).

*Acmaea jamaicensis Gmelin
" cubensis Reeve
* " pustulata Helb.
Anadara lienosa floridana Conrad
Arca imbricata Brug.
" zebra Swainson
*Arcopagia fausta Pulteney
*Arcopsis adamsi Dall
*Arene cruentata Muhl.
*Asaphis deflorata L.
Aspella paupercula C.B.Adams
*Acanthopleura granulata Gmelin
*Barbatia cancellaria Lamarck
" domingensis Lamarck
*Batillaria minima Gmelin
*Bittium varium Pfeiffer
Brachidontes citrinus Röding
*Bulla striata Brug.
*Cantharus auritulus Link
*Cassis flammea Linné
* " tuberosa Linné
*Cerithium litteratum Born
*Chama florida Lamarck
" sarda Reeve
*Charonia variegata Lamarck
*Chiton tuberculatus Linné
*Cittarium pica Linné
Codakia costata Orbigny
* " orbicularis Linné
Columbella mercatoria Linné
*Conus mus Hwass
" ranunculus Hwass
*Cymatium nicobaricum Röding
*Cyphoma gibbosum Linné
*Cypraeacassis testiculus Linné
*Cypraea cinerea Gmelin
* " zebra Linné
Dentalium antillarum Orbigny
Detracia bullaoides Montagu
*Drupa nodulosa C. B. Adams
*Echininus nodulosus Pfeiffer
*Engina turbinellas Kiener
*Fissurella barbadensis Gmelin
" barbouri Clench
" punctata Fischer
Haminoea elegans Gray
Heterodonax bimaculatus Linné
*Isognomen alatus Gmelin
* " radiatus Anton
Janthina janthina Linné
*Leucozonia nassa Gmelin
Littorina angulifera Lamarck
* " ziczac Gmelin
Melampus coffeus Linné
*Mitra barbadensis Gmelin
* " nodulosa Gmelin
Nassarius albus Say
*Natica livida Pfeiffer
*Nerita peloronta Linné
* " tessellata Gmelin
* " versicolor Gmelin
*Neritina piratica Russell
* " virginea Linné
Ostrea frons Linné
Petaloconchus floridanus O. & H.
Pinctada radiata Leach
Pinna carnea Gmelin
*Pisanio pusio Linné
Planaxis lineatus da Costa
* " nucleus Brug.
*Purpura patula Linné
Semele purpurascens Gmelin
Sepulorbis riisei Mórch
Spirula spirula Linné
Rissoina bryerea Montagu
*Stenoplax limaciformis Sowerby
*Strombus costatus Gmelin
* " gigas Linné
" raninus Gmelin
*Tectarius muricatus Linné
*Tegula fasciata Born
Tellina agilis Stimpsom
* " listeri Röding
" mera Say
* " radiata Linné
*Thais rustica Lamarck
Zebina browniana Orbigny

. . Ethelyn Woodlock

See also Mrs. Woodlock's list from nearby Grand Cayman, NOTES No. 127, pp. 6-7.

NYSC NOTES NUMBER 140 MARCH 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

NOTE: NEXT MEETING A SHELL-SOCIAL APRIL 7th.
SEE PAGE 1 FOR TIME, PLACE, AND PLANS.

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY, with the following exceptions: Sunday, April 7th, Social meeting in the rooms of the Broadway Dance Studio, Astoria, Queens; Sunday, May 5th (the first Sunday in May), at the Museum.

NEXT MEETING: SUNDAY, APRIL 7th, 1968, at 2:00 P. M.
THE PLACE: BROADWAY DANCE STUDIO (Phone: AS.4-1503)
31-08 BROADWAY
ASTORIA, QUEENS, N. Y. (Directions below.)
PROGRAM: !!!!!! PARTY !!!!!!
AUCTION DOOR PRIZE(S)
BARGAIN TABLE SHELL GAME(S)
COLOR FILM(S) RAFFLE(S)
REFRESHMENT HOUR CANAPES
BUFFET SUPPER - - COFFEE
HOMEMADE CAKES BY OUR OWN PASTRY CHEFS

Veronica Johns ("Seashells Unlimited, Inc.") has donated a book for the raffle; the winner will have a choice of either "Caribbean Seashells" by Warmke and Abbott, or: Webb's "Handbook for Shell Collectors", or: "Sea Shells with Values" by Melvin, or: "Shell Collecting, An Illustrated History" by Dance. Mart Hulswit has donated a fine copy of "The Scallop" edited by Ian Cox 1952 -- a collector's item. Neal Seamon has contributed a Conus aurantius and a Cypraea sulcidentata plus other shells. We have other pledges, but your donations are NEEDED -- no item too large or too small! Bring them in a few minutes before the meeting starts so that the committee will have time to put them on display. Or if you wish, you may mail a package c/o George Raeihle, 7924 Ankener Avenue, Elmhurst, N. Y. 11373.

A motion picture in color is planned; if a 16 mm. projector cannot be obtained there will be some interesting color slides. At any rate, we look forward to a most enjoyable afternoon with plenty of shells and sociability!

DIRECTIONS: The studio is on the second floor of the building, corner of 31st St. and Broadway. Only 20 minutes from Times Square via B.M.T. subway, ASTORIA line, BROADWAY stop (third stop beyond Queensboro Plaza) and you're there! Free transfer from I.R.T. Flushing line to the B.M.T. ASTORIA line may be made at Queensboro Plaza. From Jamaica, IND. subway to Roosevelt Ave. stop, free transfer to I.R.T. Flushing line, transfer to B.M.T. ASTORIA line at Queensboro Plaza. BY CAR: Queensboro Bridge to Northern Blvd. to 31st St., left on 31st St. (under the El) to Broadway. Or Triboro Bridge to the first exit in Queens, turn right under the Elevated (it's in sight as you exit) along 31st St. to Broadway. From Long Island, Grand Central Parkway to the last exit before the Triboro Bridge, a short distance along Astoria Blvd. to 31st St., turn left under the El to Broadway (about 6 blocks). Queens and Brooklyn residents should have no trouble -- just check your map. If there are any questions, you may telephone us at NE. 9-2559 (Raeihle) or AS.4-1503 (Jensen).

Come one, come all! Guests, too, are welcome on payment of dues ($3.00) entitling them to full membership for one year.

ON A BRIEF CORRESPONDENCE WITH DR. HENRY A. PILSBRY

by Morris K. Jacobson

There is no doubt that certainly one of the greatest, if not the very greatest, name in the history of malacology is that of Dr. Henry Augustus Pilsbry (1862-1957) of the Academy of Natural Sciences of Philadelphia. In his long and amazingly productive life he must have written countless letters to professional and personal correspondents and not rarely to amateurs and beginners. In my file of correspondence I came across a few such letters addressed to me. They date from the 11th of October, 1945 to the 19th of November, 1956. With the idea that they may prove of some historical interest, I am here supplying a short account of them.

My first letter to him is dated 30th September, 1945 and relates to a colony of *Triodopsis albolabris traversensis* Leach, the dwarf form of the white lipped forest snail. I was happy when I read what Dr. Pilsbry said: "(it has) the vas deferens very much shortened, as I have confirmed in one of your lot sent alive. This anatomical distinction ... leads me to think *traversensis* a real subspecies, not a mere ecological form." The results of this brief exchange of letters can be seen in Jacobson and Emerson, SHELLS OF THE NEW YORK CITY AREA, 1961, (SNYCA) p. 4 and in 59 NAUTILUS, 58-59, 1945. On the 26th of April, 1946, he again wrote to Walter Smit and me, thanking us for a series of *Cepaea nemoralis* Linné, the English garden snail, from Rockaway -- a first record of this species in this locality. In the letter he speaks thus about our specimens: "Do you think that the salt breeze erodes the periostracum? and is there blowing sand to etch them? I never saw so ill-favored a lot of this species." In 60 NAUTILUS, 2-4, 1946 I reported what this slur on my homeland caused me to do. (See also SNYCA, p. 11.)

I visited Dr. Pilsbry a few times in between, but his next letter is dated 24th May, 1950, in which he reports that he had just returned from Argentina. This letter dealt with a projected catalog of the land shells of Jamaica which I was planning -- and which I never finished. On 30th August 1950 he wrote to me again, thanking me for a series of land shells which I had collected in Mexico in July. He determined the shells for me and at my invitation kept a few of the rarer ones for the Academy collection. The results of this determination by Dr. Pilsbry were published in 65 NAUTILUS, 109-114, 1952. In this series he found a new *Streptostyla* which he generously named for me (64 NAUTILUS, 120, pl. 9, fig. 3). But in his account he referred to me as M. L. Jacobson, a name change which fortunately the International Committee on Zoological Nomenclature later rejected. In the same letter he also verified the presence of *Helisoma trivolvis marshalli* F. C. Baker, a fresh water rams horn snail, from Flander, Long Island -- a first record of this subspecies from the New York City area. (See 64 NAUTILUS, 104, 1951.)

I next received a letter from Dr. Pilsbry on the 16th of November, 1951, dealing with our discovery of *Discus rotundatus* Mueller, the European disk snail, in New York -- a new record (see SNYCA, p. 16 and 65 NAUTILUS 105, 1952). In this letter he also briefly referred to the fate of his completed but never published work on the land shells of New York State. He wrote: "The book on the shells of New York was never published, as John M. Clarke, who got me to do it, died a month after I sent it in. Nobody since then has had his pull with the Legislature to get the money for it. It was, by Clarke's instruction, got up in good style, many col-

ored plates. I have the manuscript here now, as I wanted to use some of it in my Land Shell book" (referring without doubt to his LAND MOLLUSCA OF NORTH AMERICA). Anyone who has been fortunate enough to have seen the colored plates referred to will realize what an artistic and malacologic misfortune it was that they never saw the light of day.

On the 15th of May, 1952 he wrote to me regarding the discovery on one of the field trips of the New York Shell Club to Staten Island of the species Ventridens ligera Say, the belly tooth snail (SNYCA, p. 6; 66 NAUTILUS 99-101, 1953). Apparently it was the first ligera he had seen from Staten Island, though he was aware that records had been published. It was our member Jack McLellan who pointed out to me that it was probably not the true ligera, but the form known as stonei Pilsbry.

The problem of the gem clams, Gemma, was discussed in his next letter to me the 4th of August, 1952, i. e. are there four species known (gemma Totten, manhattensis Prime, purpurea Lea, fretensis Rehder? or one species with three subspecies? or one species only that varies with the varying ecology?) Unfortunately, Dr. Pilsbry never published on this subject. I once spoke to the Club on this problem, but reached no conclusions worth repeating. (See NOTES No. 100 -- Ed.)

On the 29th of January, 1953 Dr. Pilsbry wrote to me from Lantana, Florida, the only letter entirely in his handwriting; the others were typed. By accident he wrote the letter on the back of a form letter from the publisher of "Who's Who in America". In the letter he questioned me about a label associated with a lot of shells collected in Mexico. The label was not mine. I answered, writing, "I am happy that when I send someone a label it's better looking and more informative than the one you enclosed." (A hint here to label writers.) Pilsbry stated that the lot of shells so poorly labelled included a new species of Holospira, a thin, slender urocopt from the west and Mexico. I don't know if this was ever published.

His last letter to me is dated the 19th of November, 1956, less than a year before he died. In it, among other things, he writes about his illness, - "I was pretty ill until an operation and a month in hospital, which fixed me up all right." The letter dealt mainly with a series of Potamolithus, small fresh water snails from Uruguay, which I had sent him, knowing that he had prepared the best monograph on the group. He wrote: "I did not get down to the shells until my return to Philadelphia. Then I found I had left those Potamolithus in the cottage in Florida." He planned to return there on September 3rd and get the shells. "I will go over them as soon as I can and return them by mail." Unfortunately, this was one of the few projects he left uncompleted.

If these letters show anything, they show the extreme kindness with which so busy a scholar gave freely of his time to a rank amateur. I must say, though, that I was most careful to intrude upon this industrious man as little as possible (about 10 letters in about 11 years!) and when I did, I made sure that the matter would be of interest and value to him as well as to me. And that this proved a good procedure can be seen in the fact that almost every exchange of letters with him led to a published article, sometimes by him. In every case when I asked him to name up material for me, I made sure that it represented areas and groups of particular interest to him (Gemma, Mexico, Potamolithus). I always gave him to understand

that any material he considered to be valuable I automatically donated to the Academy collection. When he did choose to keep lots of single specimens, he always exchanged them for similar material, new to my collection.

Looked at in every way, I count myself fortunate beyond measure that I found so kind and helpful and competent a guide just as I was becoming fascinated with the world of mollusks.

A FURTHER NOTE ON RAPANA THOMASIANA

(The interesting situation of Rapana thomasiana has been discussed in NOTES Nos. 54, 130 & 138. These latest remarks were contained in a letter to Mr. Ernest Walton from his Russian correspondent.)

"Rapana thomasiana was first discovered in Novorossijskya Bay in 1948 and hence it began to extend off the Crimea and Caucasus. Many scientists suppose that this mollusc entered the Black Sea with ships from the Far East.

"In 1956 it was found in the Azov Sea. Rapana thomasiana endures salinity fluctuations; when breeding it hatches cocoons from which small Rapana thomasiana appear in a month. It damages oyster beds in the area of Kerch Strait and now it is moving towards the shores of Bulgaria and Romania devouring other molluscs on its way.....

"I myself caught R. thomasiana on Far East but they were much larger than ones from the Black Sea....."

A CORRECTION

On page 6 of the February 1968 number of these NOTES there appeared a list of land shells from Little Cayman Island that needs correction:

"Cepalis" varians might be Hemitrochus caymanensis Pilsbry. H. varians does not occur on Little Cayman Id. Cepalis, misspelling of Cepolis, was originally considered the genus in which Hemitrochus had been placed as subgenus.

Holospira cerion does not exist. Probably two species are here involved: Brachypodella caymanense Pilsbry and Cerion martinianum Kuster. The Brachypodella is the only elongated urocoptid on Little Cayman. Holospira is a urocoptid genus found only in the Southwest U. S. A. and Mexico. There are four forms of Cerion on the island of which martinianum is the commonest.

Trishoplita pallens Jacobi (not Trisoplita) is a Japanese helicid which could hardly be expected to have turned up on the other end of the world. Probably the widely spread Bradybaena similaris Ferussac was meant.

The last three names on the list probably refer to one species, viz. Pleurodonte (Dentellaria) sloaneana ("Sloarcana" in the list) now usually known as Dentellaria sloaneana Shuttleworth. As the author correctly noted, this is a Jamaican species that could well have been washed up on Little Cayman Island.

Chondropoma caymanense Preston was almost correctly transcribed.

M.K.J.

HELIX POMATIA AND THE "NEEDLE'S EYE"

Supplementary to the March-meeting presentation, "Disadvantages of Shell Collecting in France and Switzerland", here is one more disadvantage of which the author obviously was not aware.

It may be helpful to all potential, future shell collectors in Switzerland to know about a bill, recently passed by the canton government of Neuchâtel, concerning Helix pomatia -- to connoisseurs better known as "Escargot".

To prevent this edible snail from becoming extinct in this part of Switzerland, the law requires collectors to get a hunter's license for chasing this "wild animal". In addition to it, the snail hunter, when on the warpath, has to keep a specified metal ring handy in his game-bag. The metal ring is of an opening of 35 mm (1 3/8 inch). Snails which go through this "needle's eye" must be set free again. Only those which are too fat may be taken -- to end their life in the frying pan.

. . . Willie Antonowitz

AELIANUS' UNNATURAL NATURAL HISTORY

(Claudius Aelianus, Roman author and rhetorician, was born at the town of Praeneste about the year 170 A. D. The following item from his works was researched by Charles Schmitt.)

X. 13

......The oysters in the Red Sea are not without .. glamour, for they are encircled with rings of fiery hue, and to look at them you would say that with the blending of their colours they were copying the rainbow, Nature having painted parallel stripes upon them. And the pearl, so celebrated among fools and admired by women, is also a nursling of the Red Sea, and they tell a marvelous story of how it is produced when lightning flashes upon the open shells. So then these shells which are the mothers of the aforesaid pearls are sought for when the weather is fine and the sea smooth. And the seekers collect them and extract this object which delights the heart of the luxurious. One may find a small pearl even in the largest shell and a large one in a small shell; and this one contains none, and that not more than one, and many contain a number. Some assert that as many as twenty have been attached to a single shellfish. Now the shell is the flesh, and these pearls cling to it like a thorn. But if one were to open the shell prematurely, that is before the birth-process is complete, one would find the flesh indeed, but it will not contain the object of one's quest. The pearl, it seems, is like a stone produced by petrifaction, and it is not in its nature to contain or to admit even a drop of moisture. In the opinion of those who trade in pearls and those who buy them, pearls that are pure white and large are the most beautiful and the most highly esteemed, and I can avow that many of those who make a livelihood by them have become wealthy. And I am also well aware that when these stones have been extracted and the shellfish have been released after giving up the aforesaid coveted object as ransom for their lives, they have gradually produced another one. .. It has a naturally smooth and well-rounded contour, but if a man should want by artificial means to make round and smooth some stone not naturally so, the pearl confounds his design, for it declines to yield and develops roughnesses, thereby renouncing the plot that has been laid to secure its beauty.

PRELIMINARY RESULTS OF A STUDY ON THE PLACEMENT OF POLINICES HOLES IN THE SHELLS OF SPISULA SOLIDISSIMA AT ROCKAWAY, N. Y.

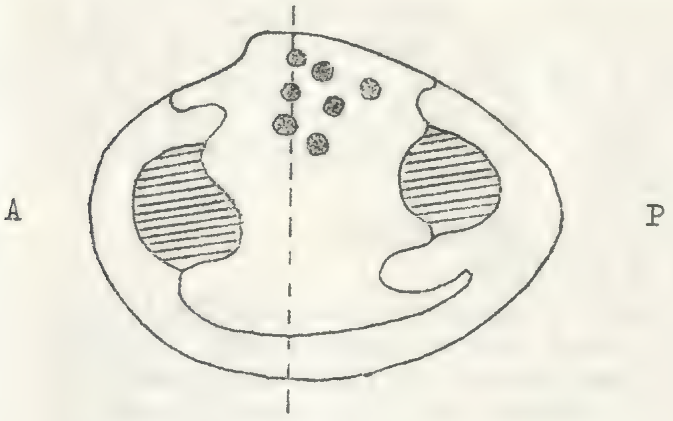
by Morris K. Jacobson

The neat, round, countersunk holes, frequently found in the valves of dead Surf Clams at Rockaway Beach and elsewhere along the East Coast, are made by one of two species of Polinices (Moon Snails), P. heros Say or P. duplicatus Say. The hole seems to be made by a combination of the radula plus a special acid-secreting organ; it is quite characteristic and can be easily recognized.

I have been examining 100 valves drilled in this fashion and the few observations I was able to make so far may prove to be of some interest.

(1) The clams are attacked indiscriminately on the left or the right valve. Of 100 bored valves collected at random, exactly 50 proved to be the right valve and 50 the left. (The position of the valve can be easily determined; the pallial sinus -- the deep indentation on the pallial line -- is always to the rear of the clam. From this, when the shell is held umbo up, it can be seen immediately whether it is the right or the left valve. (See Jacobson and Emerson, 1961, SHELLS OF THE NEW YORK CITY AREA, p. 72.)

(2) The hole is almost always made posterior to the umbo, or tip, of the shell. Sometimes the hole is placed as much as 4 mm., or in exceptional cases even 8 mm., behind the umbonal line. The umbonal line I call the line dropped perpendicularly from the umbo to the ventral (lower) margin of the shell. Often, however, the hole lies right on the umbonal line itself, but almost always the central diameter of the hole is posterior to the umbonal line. In the 100 specimens examined, only 3 had this central diameter anterior to the umbonal line, and in 5 the central diameter and the umbonal line more or less exactly coincided. In the 3 cases where the hole, or rather the central diameter of the hole, lay anterior to the umbonal line, this line always passed over some portion of the hole, whereas when the hole lay behind the umbonal line the distance from the line varied from a fraction to as much as 8 mm. Hence there is no doubt that the predator usually seizes its victim from the rear.



This preference for the posterior portion of the shell might find its explanation in one or both of the following facts: (a) The clam lies buried in the sand with the siphons, hence the posterior portion, near or even above the surface, thus the predator is most likely to attack this portion first. (b) The younger Spisula are generally equilateral (that is, the umbo is central); as they grow the posterior portion tends to increase more rapidly, giving the clam an inequilateral or lopsided appearance. (See Jacobson 1944, 57 NAUTILUS 100-104.) The larger portion would conceivably be the portion first attacked.

(3) The holes varied in size from 8 mm. to 2 mm., with an average of 5.69 mm. However, these holes did not necessarily correspond in size to the size of the shell. Many very large holes were found on very small shells and many small holes were found on large shells. Presumably when Polinices is hungry he eats anything that comes along, no matter what the size of the predator or the victim.

(4) Although it was seen that many clams had been killed by Polinices, as shown by the presence of the holes, yet other causes resulted in a vastly larger mortality. I found thousands of unbored clams for every single bored one. This was true not only recently, when huge windrows of dead and dying Spisula were thrown on the beach by winter storms, but on any day in the year the unbored valves vastly outnumber the bored ones. Hence there is no need, or so it would seem at Rockaway, to regard the Polinices as a significant threat to the Surf Clam, which is steadily growing in importance as a source of human food.

(5) The largest bored clam that I found measured 88 mm. long and 65 mm. high (about 3½ x 2½ inches). Frequently I found larger shells with signs of unsuccessful attack in the form of an incompletely bored hole. In all likelihood, however, these clams had been attacked when they were smaller and had managed to escape without being killed. This could be seen by the aged appearance of the unperforated pit. At any rate, it would seem that once the clam has reached a size of 3 inches or more it is safe from attack by Polinices. Spisula has been known to reach 9 inches in length.

(6) The holes almost always lie near the umbo. They occupy an area 15 mm. high to about 6 mm. wide, located posterior to the umbonal line. However, most holes are placed much closer to the umbo, at a distance less than 5 mm., while some are directly on the umbo or only a fraction of a millimeter removed.

CONFERENCE ON SHELLFISH CULTURE
April 8 & 9, 1968

In cooperation with the Bureau of Commercial Fisheries, United States Department of the Interior and the New York State Conservation Department, the Regional Marine Resources Council (Nassau-Suffolk Regional Planning Board) and Suffolk County Community College announce a conference on shellfish culture to be held in the Theatre Auditorium of the Suffolk County Community College at Selden, Long Island, New York on Monday and Tuesday, April 8th and 9th.

The program will be in four sessions: I - Algae Culture. II - Molluscan Embryology and Physiology. III - Culture Methods: Present and Future. IV - Techniques and Problems in Commercial Shellfish Farming. Speakers listed are biologists and zoologists from several eastern universities and marine laboratories; names well known in molluscan circles are Dr. James Hanks of the Milford, Conn. laboratory and Dr. Melbourne Carriker of Woods Hole, Mass.

For the scheduled program with information as to registration, reservations, and directions to Selden, write to Professor Walter Smith, Suffolk County Community College, 533 College Road, Selden, Long Island, New York 11784.

NYSC NOTES NUMBER 141 APRIL 1968

NEW YORK SHELL CLUB

INC.

FOUNDED JAN. 1949

NOTICE ------ NEXT MEETING MAY 5th

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

However, because of holidays conflicting with the "2nd Sunday" schedule, the April and May meetings of 1968 were re-scheduled for the 1st Sundays of those months.

NEXT MEETING: SUNDAY, MAY 5th, 1968, at 2:00 P. M.

PROGRAM: "GETTING TO KNOW THEM" A color slide talk on appreciating New York marine shells.
By George Raeihle

SHELL-OF-THE-MONTH to be announced.

COMING EVENTS:

The New York Shell Club's annual field trip and outing was voted to be held Saturday, June 22nd, at Orient Beach State Park. The 2:00 PM low tide could not be better timed for leisurely shelling. See you!

Plan to attend the 34th annual meeting of the American Malacological Union, to be held at Corpus Christi, Texas, July 15 - 19. Details of reservations, etc., will be in our May NOTES. Meanwhile, the "Call for Papers" has been received. Those desiring to contribute to the program should inform Dr. Clarke of their title, time required and equipment (projector, etc.) needed *not later than May 30th*. Address: Dr. Arthur H. Clarke, National Museum of Canada, Ottawa 4, Canada.

If you are planning to attend the 3rd European Malacological Congress in Vienna, don't forget that the deadline for reservations to join the special tour being arranged by the AMU is May 20th. Address Dr. Alan Solem, Field Museum of Natural History, Lake Shore Drive & Roosevelt Road, Chicago, Illinois 60605. For detailed information about the meeting, to be held September 2nd through 7th, write to Dr. Oliver Paget, Naturhistorisches Museum, Burgring 7, A-1014, Vienna 1, Austria.

ERRATA:

MARINE SHELLS OF THE PACIFIC

Quite recently, Cernohorsky published a good book on South Pacific molluscan species: MARINE SHELLS OF THE PACIFIC, Pacific Publications, 1967. On page 17, the author mentions that a currently used anti-cancer drug named "vincaleukoblastine" is extracted from the *Littorina* species (periwinkles) of mollusks. This is completely erroneous. The drug is prepared from the common periwinkle *plant* (*Vinca rosea*) which has no connection whatsoever with the periwinkle snail. This correction should be noted by readers of the book.

W. W. Sutow, M. D.
Excerpt "Molluscana" *in*
TEXAS CONCHOLOGIST
Vol. IV, No. 7, Mar. 1968 (p.52)

THE LARGE FOSSIL HARD SHELL VENUS CLAMS IN ROCKAWAY

by Morris K. Jacobson

Occasionally very large, heavy, discolored, more or less worn valves of the Venus Hard Shell Clam are found in Rockaway Beach. The shells look very much like the ordinary Hard Shell Clams (Venus mercenaria or Mercenaria mercenaria Linné) but they are much thicker, more massive and heavier, and do not show any signs of the purple blotch characteristic of the true mercenaria. Similar shells are also said to be found in the post-Pliocene fossil beds of Gardiner's Island (at the eastern end of Long Island) and elsewhere in several localities along the New England coast.

A. E. Verrill in 1875, because of their "size and massive character" named these shells variety antiqua, since he knew them to be fossils. In 1920, however, E. S. Morse (49 American Journal of Science 161) decided they were probably identical with the southern form known today as Venus or Mercenaria campechiensis Gmelin (also known as Venus mortoni Conrad). Morse also wrote that the clams of Quohaug Bay, Freeport, Maine, were "much larger and thicker than the usual Venus mercenaria, though not so large as V. campechiensis [and] [have] the same rounded form of the Florida species and [have] no tinge of purple which is so marked a character of V. mercenaria." The fact that a southern form -- whether species or variety -- is found so far to the north he explained by the presence of isolated bodies of warmer shallow water which support southerly forms not known in the surrounding colder water.

It is more than likely that the heavy shells found in Rockaway and elsewhere are identical with campechiensis from the south. The ancient New York colony died out as the waters around the city grew colder, but where waters remained warm, discontinuous and isolated colonies persist perhaps to today.

These heavy shells must be included in the list of other southern forms that in earlier eras lived in New York and are now found only or largely as fossils. These include: Ponderous Ark (Noetia ponderosa Say), Marsh Periwinkle (Littorina irrorata Say), Angel Wing (Cyrtopleura costata Linné), and perhaps Cross-hatched Lucina (Divaricella quadrisulcata d'Orbigny), and Circulus liratus Verrill.

The subgenus Mercenaria was established by Schumacher in 1817 for the generally smooth venerid clams with strong, irregularly furrowed cardinal teeth. Immature specimens have a series of raised, blade-like concentric lamellae which wear off as the shell matures. Typical Venus (type V. verrucosa Linné) have the same shape of shell, but the surface is covered with tubercles formed by the crossing of the radial and concentric lamellae. The hinge teeth differ in being smaller and in not being furrowed. Recently Mercenaria has been considered by many -- but not by Jacobson & Emerson or by Tebble -- to be a full genus.

The Hard Shell Venus Clam is known as "quahog" or "quahaug" (pronounced KO-hawg) in New England, a corruption of the Indian word "poquahock". It has always been considered a particularly tasty marine morsel. It has been naturalized in Europe and on the West Coast of the U. S. A.

LONDON LETTER

by FRANCIS COWPER

News from Heacham

All good Americans should, and probably a great many Americans actually do, know about the little village of Heacham beside the North Sea on the Norfolk coast. Anyhow, a lot of them claim to have Heacham blood in their veins, though the village has fewer than 3,000 inhabitants, and that is just as distinguished as being descended from the Pilgrim Fathers and Mothers, and a lot more romantic, for John Rolfe, who married the eighteen-year old Princess Pocahontas in 1613, was a Heacham man and her son by him lived, married and died in America, leaving an only daughter, who passed on to her numerous descendants the unique blend of Norfolk and Red Indian blood. The Rolfes held the manor of Heacham for many centuries and the parish church is full of their monuments. If Pocahontas had not died young Heacham might have had a Red Indian lady of the manor.

In the nature of things, Heacham rarely figures in the national news but it has recently taken a rather whimsical leap into the limelight. In the process it has also achieved a sort of recondite immortality in getting itself into the law reports as the venue of a dispute which has directed the searchlight of judicial wisdom on an unexplored point of the law relating to wild animals. . . .

Denizen of the Deep

Exploring the unpredictable relationships between man and his furred and feathered friends and enemies, the courts have reached some surprising conclusions, including an English decision that the camel in England is a tame animal.

The glory of Heacham is that it has searched the secrets of the deep to discover whether the mussel is wild or tame, a point on which hitherto the wild waves have said little and the judges less.

The point arose like this. The hardy fishermen of Heacham do not invariably pursue the denizens of the deep in boats, and one October day in 1965 when the tide was exceptionally low, Ernest Howlett and his young nephew David walked across the foreshore to a spot below the average low tide mark, where a natural scalp (or bed) of mussels had been exposed, collecting six bags of them, worth £7.10.0.

But there is not much you can do in England without stubbing your toe against an outcrop of history, and, before uncle and nephew could cry "cockles and mussels", they were being confronted with an alleged presumption that some time before 1189 the Crown had granted the foreshore fishing rights to the Lestrange family, whose representatives had in their turn leased it in 1935 to a Mr. Loose, whose grandson now said that those six sacks of mussels belonged to him. The outcome was that the Howletts were prosecuted at the Norfolk Quarter Sessions on a charge of larceny. The jury convicted and they were fined £10 each.

Criminal lawyers are but little accustomed to the almost metaphysical intricacies of land law especially where it touches the debatable borderland of the sea. So, to conduct their case in the Court of Appeal, the defendants called in the services of a Chancery leading counsel, well versed in all the esoteric mysteries of "several fish-

eries" and "lost grants" and objects "adhering to the realty."

Freedom of the Seas

However sophisticated the conduct of the appeal, the points raised were essentially a return to nature, the cruel sea and the call of the wild. First, it was said, the mussel, clinging tenaciously to the rock, is not a piece of moveable property but has constituted itself part of the real estate and as such is not a possible subject of larceny. Secondly, the mussel obeying only the action of wind and wave, is a wild animal incapable of being stolen until after it has been reduced into possession. Thirdly, the foreshore does not extend below the line of average low tide. Beyond that are the high seas where the Crown has no power to destroy the public right of fishing. Anyhow, it was added, the Lestrange's title to the foreshore did not recede into the misty historic hinterland before 1189, but went no further back than a grant of King James I in 1607, and, though the time when Pocahontas was a girl may seem to the uninitiated a respectable antiquity, it was too late in law to support the right relied on.

In giving judgment allowing the appeal and quashing the conviction Lord Justice Diplock was content to hold that the mussels were wild animals, never before reduced into possession until they found their way into the Howletts' sacks. The mere fact that Mr. Loose had raked over the bed in 1962 and occasionally moved some mussels over from a place where they were growing too thickly to another where they were growing too thinly was to be treated rather as an act of kindly solicitude for their comfort and repose than as an assertion of ownership. Maybe all that fussing had made the mussels wilder than ever, restless and apprehensive. Anyhow, within four months of the Howletts' expedition the whole colony had apparently cut their cables, launched themselves on the tide and vanished forever in the depths of the sea.

To most of us accustomed only to the sight of moules marinières in the restaurant or mussels clinging sadly to the underside of Brighton Pier, it has never occurred that the mussel was ever anything but tamely domesticated, a shy creature always prone to retire into its shell. Now that the wildness of the mussel is a proposition of law we shall have to reorient our imaginations.

NEW YORK LAW JOURNAL
February 26, 1968

IN THE NEWS:

AFTERMATH

Last year a tide of crude oil deposited on the Cornwall beaches from the damaged tanker Torry Canyon and resulting in heavy casualties to bird and marine life was battled by huge quantities of detergent. Now the report is that the coastline areas not treated with detergents have returned to normal, the oil dispersing before it did irreparable damage to the fauna -- whereas areas that were heavily treated are now choked with seaweeds. The overabundance of seaweeds is attributed to the elimination of herbivores, such as limpets, which were unable to withstand the added injury of the detergents.

SHELLING AT NEW KINO BAY, SONORA, MEXICO, GULF OF CALIFORNIA

by Helen MacCaa

This year we ended our Christmas Holiday vacation at New Kino Bay, Sonora, Mexico. The seventy mile trip from Hermosillo to Kino was quite pleasant, with much irrigation going on in the green fields, which is unusual for northern Mexico.

As you approach Old Kino, to the left of the highway you see the almost deserted buildings that were once a thriving fishing village. The improved road takes you over the sea wall right into New Kino Bay. What a beautiful sight, with the mountains towering right out of the sea!

As you drive along the ocean (about an eight mile stretch) there are many lovely Mexican homes, with palm trees and blooming flowers. There are sidewalks and street lights; really you almost forget that you are in Mexico. Getting a little farther down the road you pass two motels, two trailer parks, a restaurant or two, etc. For gas you have to go to Old Kino, which is near by, or you have to go thirty miles back out of town.

At the end of the road is the Cantina. This is owned by a wonderful Mexican family. Every New Year's Eve they barbecue a pig and every one is invited, as their guest, to the Fiesta. The barbecue pit, a hole about four feet deep, is heated several hours before by a hot mesquite wood fire. The pig is lowered into the hole on a tray, then the hole is covered with a metal sheet.

At midnight the sky is lit up with many fireworks, and the pig is brought into the Cantina for the big Fiesta. The table is set with many Mexican dishes such as frijoles, tamales, tortillas etc., also a large cake that looks as if it was baked in a big old fashioned dishpan. The following morning the Cantina serves menudo, which is a soup that cures all the morning after a Fiesta. (This year the Fiesta was not held because of the family tragedy -- but I had witnessed the Fiesta another time.)

The Cantina is built right onto Red Rock Mountain. A few yards from here you find rocky crevices that are a limpet collector's paradise. Other shells are also found deep in the crevices; you need a knife to get them out as your hand will not fit in these small areas. The crevices are quite steep and sometimes you have to practically stand on your head to get the shell you have spotted. The water is very deep off this area, so you have to be careful where you put your shell bucket down -- or a wave will steal it from you for good. I spent many hours at low tide in this area, as I had never been here when there was so much exposed.

The beach is one of the prettiest I have ever seen. Shelling was a little different here than other areas I have shelled in West Mexico. In fact, from what I have heard, I would say it is similar to shelling in the Gulf of Mexico. The surf brought up the live shells on the sandy beach, which was new to me. The beach is rich with dead shells. Rocks for turning over were not plentiful. There are also several estuaries that one can explore.

Tiburon Island is a beautiful sight from Kino. The Siri Indians come to the mainland with their crafts to sell. Their dress is beautiful and very colorful. I never saw these women walk -- they either ran, or picked up their skirts and sat on the cold ground. They are very curious, and think nothing of lining up by your trailer windows to watch you. Some of their beads were made out of the shiny *Oliva spicata*, with all of the apexes chipped off so they could string them. The men were quite picturesque with their long, braided hair hanging down their backs. They speak their native tongue, but their money exchange is Mexican.

The Holiday is almost over...... Looking out at the beautiful blue water, you can't help but say a little prayer for the two California fishermen and their Mexican guide, who were lost out there this past week.

(Dec. 30 & 31, 1967)

SPECIES COLLECTED AT KINO BAY, SONORA, MEXICO,

by Mrs. Robert MacCaa; identification by Mrs. John Germer

IN ROCKY CREVICES:

Acanthina angelica I. Oldroyd
Acmaea atrata Carpenter
Acmaea mitella fayae Hertlein
Acmaea mitella Menke
Acmaea strigatella Carpenter
Acmaea turveri Hert. & Strong
Anachis nigricans Sowerby
Cerithium maculosum Kiener
Cerithium sculptum Sowerby
Crepidula arenata Broderip
Diodora inaequalis Sowerby
Fissurella rubropicta Pilsbry
Fissurella rugosa Sowerby
Littorina dubiosa C. B. Adams
Morula ferruginosa Reeve
Nerita funiculata Menke
Nerita scabricosta Lamarck
Pyrene strombiformis Lamarck
Siphonaria maura Sowerby
Tegula rugosa A. Adams
Thais biserialis Blainville
Thais triangularis Blainville
Turbo fluctuosus Wood

Brachidontes multiformis Carpenter
Cardita affinis Sowerby
Isognomon chemnitzianus Orbigny
Isognomon janus Carpenter

IN SAND:

Cerithidea albonodosa Gould & Carpenter

DIVERS, DEEP WATER:

Spondylus calcifer Carpenter

UNDER ROCKS:

Turbo fluctuosus Wood
Cantharus elegans Griffin & Pidgeon

BEACH SPECIMENS:

Agaronia testacea Lamarck
Anachis varia Sowerby
Anachis vexillium Reeve
Bulla gouldiana Pilsbry
Calliostoma palmeri Dall
Calyptraea mamillaris Broderip
Cancellaria cassidiformis Sowerby
Cancellaria urceolata Hinds

(Beach specimens, continued:)

Cantharus macrospira Berry
Cerithium stercusmuscarum Val.
Conus perplexus Sowerby
Crepidula arenata Broderip
Crepidula onyx Sowerby
Crucibulum scutellatum Wood
Crucibulum spinosum Sowerby
Eupleura muriciformis Broderip
Fusinus ambustus Gould
Hormospira maculosa Sowerby
Knefastia dalli Bartsch
Janthina globosa Blainville
Murex elenensis Dall
Muricanthus nigritus Phillipi *
Hexaplex erythrostomus Swainson *
Natica chemnitzi Pfeiffer
Oliva incrassata Solander
Olivella dama Wood
Polinices reclusiana Deshayes
Pterynotus erinaceoides Val.
Rhinocoryne humbolti Valenciennes*
Sinum debile Gould *
Strombus gracilior Sowerby *
Tegula rubroflammulata Koch
Terebra armillata Hinds
Terebra sp.
Terebra sp.
Turrid sp.
Turritella banksi Reeve
Turritella leucostoma Valenciennes
Vermetus - 3 species

Aequipecten circularis Sowerby
Anomalocardia subrugosa Wood
Anomia adamas Gray
Arca pacifica Sowerby
Barnea subtruncata Sowerby
Cardita laticostata Sowerby
Chama buddiana C. B. Adams
Chione californiensis Broderip
" fluctifraga Sowerby
" gnidia Brod. & Sow.
" kelletti Hinds
" pulicaria Broderip
" undatella Sowerby
" 2 species
Codakia distinguenda Tryon
Diplodonta sericata Reeve
Donax assimilis Hanley
Donax gracilis Hanley
Dosinia dunkeri Philippi
Dosinia ponderosa Gray *
Glycymeris gigantea Reeve (juv.)
" multicostata Sowerby
" sp.
Heterodonax bimaculatus Linne
Laevicardium elatum Sowerby
Macoma aurora Hanley
Mactra dolabriformis Conrad
Mactra goniocyma Pilsbry & Lowe
Megapitaria squalida Sowerby
Modiolus capax Conrad
Mytella sp. ?
Ostrea palmula Carpenter
Pecten vogdesi Arnold
Petricola denticulata Sowerby
Petricola parallela Pilsbry & Lowe
Pholas chiloensis Molina
Pitar concinnus Sowerby
Pitar newcombianus Gabb
Protothaca grata Say
Tagelus sp.
Tellina sp.
Tivella planulata Brod. & Sow.
Trachycardium senticosum Sowerby
Trachycardium panamense Sowerby

* = Not sent

NYSC NOTES NUMBER 142 MAY 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 9th, 1968, at 2:00 P. M.

PROGRAM: BONAIRE REVISITED (with color slides)
by Neal and Eva Seamon

SHELL GAME

SHELL-OF-THE-MONTH by Anne Hunter

ANNUAL ELECTIONS **

** The nominating committee is made up of the past presidents of the New York Shell Club, with Mr. M. K. Jacobson the chairman. However, in his absence, you may send your nominations to the co-chairman, Mr. Anthony D'Attilio, 444 East 82nd Street, Apt. 2L, New York, N. Y., 10028.

ANNUAL FIELD TRIP & OUTING SATURDAY, JUNE 22nd

Club members and their guests will rendezvous at Orient Beach State Park, at the northeastern tip of Long Island, where we had such a successful day last year. Bring your lunch and thermos (there is also a snack bar); sneakers or boots for walking or wading the pebbly beaches; your favorite shelling tool and containers.

Remember: June 22nd, the first day of summer, and a low tide of 0.4 at 2:00 P. M. As there is but one parking lot and one picnic grove you'll have no trouble locating the group -- especially if you arrive for a noon lunch hour! Or even earlier!

DIRECTIONS: The Long Island State Parkway system eastward to Riverhead; at Riverhead pick up New York State Route 25 north and east to Orient Beach State Park. If you find yourself at the ferry landing you have gone too far -- turn around and go back one mile. See you!

AMERICAN MALACOLOGICAL UNION -- 34th ANNUAL MEETING

The meeting at Corpus Christi will be hosted by SIX shell clubs of Texas: (In alphabetical order) The Coastal Bend Shell Club of Corpus Christi, The Gulf Coast Shell Club of Beaumont and Port Arthur, The Houston Conchological Group, The San Antonio Shell Club, The Shell Club of Galveston, The South Padre Island Shell Club. We have received the planned schedule, and each group seems to have gone all out with Texas hospitality! Delegates will be welcomed Sunday evening with an old fashioned Southern Hospitality party; Monday a Fish Fry and Treasure Hunt on Padre Island, Tuesday Shell Club night, Wednesday a Texas barbeque, Thursday the annual banquet (also very special), Friday an all day field trip -- fresh water and land, or marine, as you choose. Headquarters for all this activity will be the Robert Driscoll Hotel, 615 Upper Broadway, Corpus Christi. It is urged that you make your reservations as early as possible. We

have four extra copies of the schedule and registration form -- first to ask gets them. Or write and request a copy from the hosts' chairlady, Mrs. Anne Speers, Box 71, Conroe, Texas 77301.

We look forward to stimulating daytime sessions, also held at the Robert Driscoll Hotel, of presentations by delegates from all over the country. A. M. U. President Arthur H. Clarke, Jr. will preside. Those wishing to contribute to the program should send the title of their paper, time required, etc. to Dr. Clarke before the end of May. Address: Department of Mollusks, National Museum of Canada, Ottawa, Ontario, Canada.

Registration deadline is June 15th. A registration fee of $5.00 will include transportation to the field trip and the group photograph. Reservations forms indicating time of arrival and the particular functions you are planning to attend should be sent by June 15th to Comdr. George E. Metz, 6030 Killarmet Circle, Corpus Christi, Texas 78413.

Note that all members and their families and their friends are invited to attend. If the trip would be part of your vacation, the nearby "Hemisfair" would be a fine postscript to the meeting. If you need any other reason for a trip to Texas and Corpus Christi...........

Remember the dates -- JULY 15 - 19, 1968 !

PUBLICATIONS:

REVIEW

by Chiye Oshima

Undoubtedly some of the most faithful color reproductions of shells in all stages of live, natural and cleaned states are to be found in a recently issued Japanese paperback, SHELLS OF JAPAN: A Note of Nature by Takashi Okutani and Yoshio Takemure, published last summer by Kodan-sha Co. Ltd. of 2-12-21 Otowa, Bunkyo-Ku, Tokyo, and selling in Japan for Y460 or the U. S. equivalent of $1.28.

This modest volume of 218 pages boasts 90 full color plates. Most impressive are the fidelity of color, sharpness of detail and the tastefulness of the mounting. In some cases, live shells are shown in their native environment; other plates show egg sacs and the animal with mantle partially retracted.

SHELLS OF JAPAN is one of a series on the flora and fauna of Japan, certainly one of the most successful anywhere and a triumph of the printer's art. Text, of which there is little relative to pictures, is in Japanese but all shells are identified with Latin nomenclature. Although this book purports to be merely an introduction to Japanese shells, similar to Abbott's paperback volume on world shells, and does not treat the subject exhaustively as do the Japanese series by Habe and his colleagues, the color plates are markedly superior. . . .

Hawaiian Shell News, December 1967.

SHELLS OF JAPAN is available from the Bishop Museum Book Store, c/o Hawaiian Shell News, 2777 Kalakaua Ave., Honolulu, Hawaii, 96815, @ $1.40 per copy. We thank Bill Murphy for bringing this book to our attention. It is a beautiful little book, and in addition to the color plates there are line drawings on several of the text pages. dr

SOME REMARKS ON CARIBBEAN MURICIDS

by Anthony D'Attilio

A few years ago I undertook some research towards a review of the genus *Favartia* in the western Atlantic. In the last monograph of this so named group (JOHNSONIA, Vol. I, No. 17, 1945) the following species were referred to *Favartia*:

1. *Murex mcgintyi* M. Smith 1938
2. *Murex cellulosus* Conrad 1846
3. *Murex nuceus* Morch 1850, as a subspecies of *M. cellulosus*
4. *Ocinebra* (*Favartia*) (*cellulosa var.*) *levicula* Dall 1889

My studies of series of these species from my own or borrowed collections led to the development of doubts as to their generic relationship. Dr. Emerson suggested that a study of the radulae of these species might be appropriate before further research was attempted.

Correspondence with Professor Masao Azuma of Japan on the subject of radulae resulted in his sending to me his unpublished illustration of the radula of *Favartia brevicula* (Sowerby) (=*tetragona* Broderip?) from the Indo-Pacific and the type species of the genus *Favartia*. This radula proved to belong to the Muricinae, a subfamily of the Muricidae. Subsequently, friends obtained for me preserved specimens of *Murex cellulosus* from the Florida Keys. On shell characters, *M. cellulosus* is very close to *Favartia brevicula*. However, when the radula of *M. cellulosus* was available for comparison it proved to be completely unlike that of *Favartia brevicula*. It was Prof. Azuma's conclusion that *M. cellulosus* was to be placed among the Ocenebrinae, a subfamily of the Muricidae distinct from the subfamily Muricinae. This apparently eliminated *M. cellulosus* from the genus *Favartia*.

Further examination of the remaining species referred to *Favartia* presented, to my view, so many important differences of shell characters of generic value that I deemed it advisable to concentrate on gaining knowledge of all their radulae.

My efforts to obtain preserved specimens from the western Atlantic have not as yet been successful for *Murex macgintyi* and *Murex leviculus*. From the studies so far made on either shell characters or radulae, some conclusions were arrived at which it might not be inappropriate, at this time, to relate in a popular essay of this character.

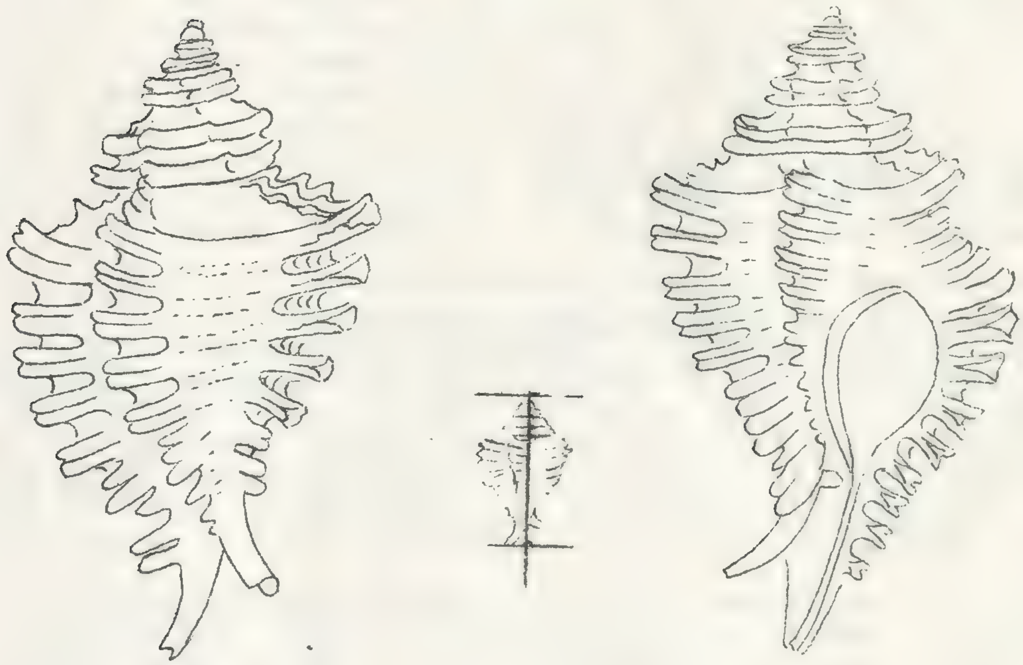
Murex nuceus Morch. This is best relegated to the synonymy of *M. cellulosus*. There are ecologic, gerontic, and population variants of this widespread species. It occurs over most of the western Atlantic from Bermuda to Brazil, both intertidally and subtidally. Compare, for instance, the population of the Tampa Bay area, where conditions are poor for coral growth, to populations in the lime-saturated conditions of the Florida Keys.

Murex intermedia C. B. Adams 1850. This species is closely related to *M. cellulosus* on generic characters though obviously distinct as a species. This opinion was later substantiated by comparison of the

radulae of the two species. *M. intermedia* had not been referred to *Favartia* in the monographic treatment of *Favartia* in JOHNSONIA.

Murex leviculus Dall is not generically related on shell characters to *M. cellulosus*. Material taken subtidally in the Gulf of Mexico by Jim Moore and others proves, on comparison with the type lot of *leviculus* Dall in the U. S. National Museum, to be the same. Strangely enough, Dall's species has not, to my knowledge, ever been figured in any publication. *M. leviculus* does not occur intertidally as far as now known. On shell characters it is closely related to the eastern Pacific species *Murex vittata* Broderip and *Murex lappa* Broderip.

Murex macgintyi M. Smith. In my opinion this species also is not related generically to *M. cellulosus*. It has been noted by previous writers that *M. macgintyi* is the Atlantic analogue of the eastern Pacific *Murex humilis* Broderip.



MUREX LEVICULUS Dall

(Drawings by Anthony D'Attilio. Center figure indicates natural size.)

MORE ON THE DRILLED SPISULA VALVES IN ROCKAWAY

by Morris K. Jacobson

Among the drilled Surf Clam (Spisula solidissima) valves collected for the study reported on in NOTES No. 140, there was one with a hole that had obviously not been made by a Polinices. This was a single valve, 98 x 79 mm (about 3 3/4 x 3 1/8 inches), with a 4 mm hole drilled 55 mm (2 1/2 inches) from the umbo and 22 mm (7/8 inch) from the umbonal line. I assumed that the predator here was not Polinices because: (1) of the position of the hole -- far from the usual locus of attack, (2) the large size and thickness of the shell -- larger and thicker than the others -- and (3) the appearance of the hole, which did not show the bevelled edge but seemed to taper gradually from the top to the bottom. Moreover, (4) the size of the hole was smaller than the hole a Polinices large enough to envelope and attack so large a clam could be expected to make. (In the previous study holes 8 mm in diameter were found.) Hence this shell was not included in the study.

Recently Dorothy Raeihle gave me a bagful of shells that had been drilled in her famous aquarium by Murex brevifrons. Most of the shells were the common Blue Mussel (Mytilus edulis) with a few Ridged Mussels (Brachidontes demissus) and Steamer Clams (Mya arenaria). But one was a Hard Venus Clam (Venus or Mercenaria mercenaria), 50 x 60 mm (about 2 x 2 1/4 inches) in size, which carried a hole 3 mm in diameter on the left valve, placed about 19 mm from the umbo (about 3/4 inch) and in appearance very much like the hole I had found in the Spisula described above. Mrs. Raeihle reported the size of the murex as 2 3/4 inches when it attacked the Venus Clam. It seems very much that the same type of predator made both the hole in the Venus Clam and in my Surf Clam. But what murex-like animal is found in the New York City area large enough to make such a hole as I found? The only muricids found here are the Oyster Drills (Urosalpinx cinerea and Eupleura caudata), neither of which grows large enough here to drill a 3 mm hole. Nor does Thais lapillus (Dog Whelk) grow much larger.

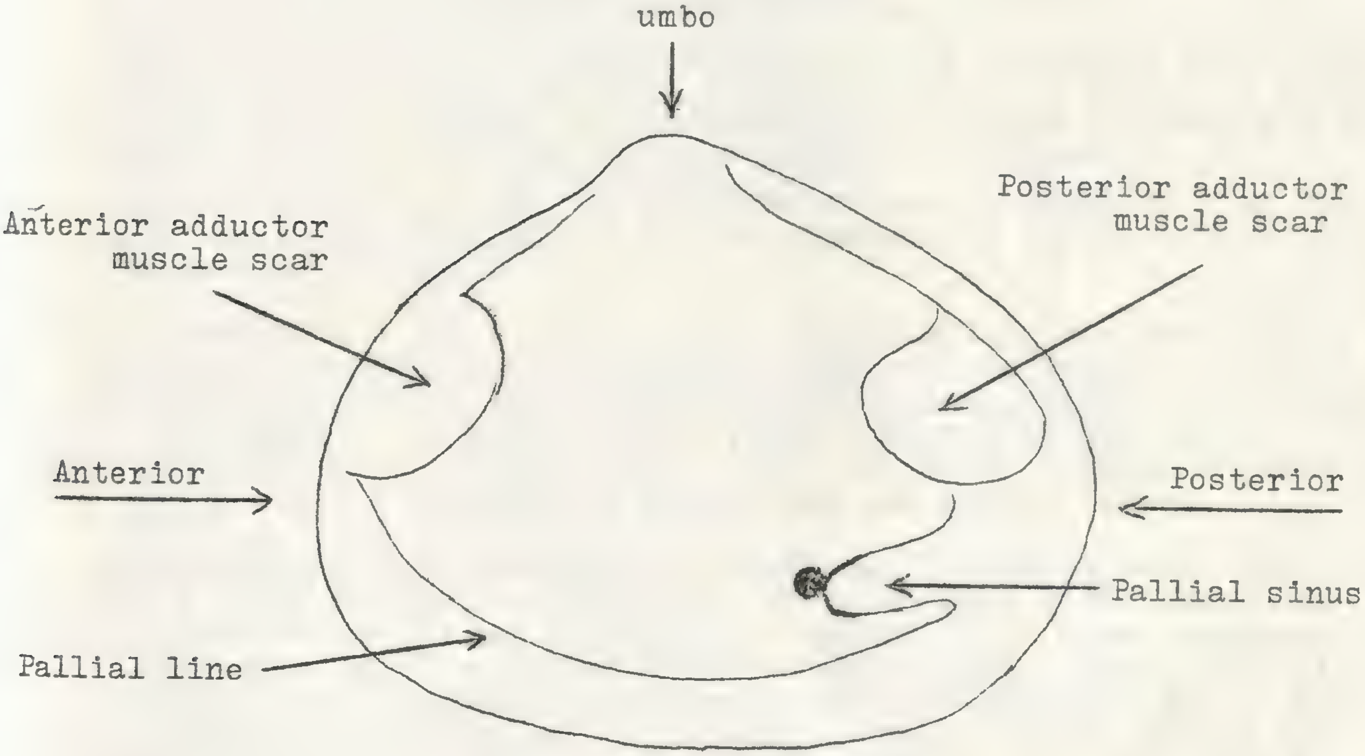
It is true that there are some larger carnivorous snails found in our region. The two whelks (Busycon canaliculatum and B. carica) as well as the far less common Colus stimpsoni, C. islandicus and English Whelk (Buccinum undatum) are all members of the superfamily Buccinacea. Fretter and Graham (1962, p. 250) write as follows: "The Buccinacea among the rachiglossan Stenoglossa are provided with a long proboscis but do not bore, being primarily feeders on dead, but fresh animals." Hence none of these could have done away with the Spisula. This leaves only some unknown muricid of unusual size for our area as the culprit.

The Moon Snail (Polinices), when it drills, envelopes its victim in its massive foot and holds it there while the attack continues. (See Fretter and Graham, p. 247). This explains why most holes are placed in the region of the umbo -- the easiest point for the type of attack the Moon Snail can launch when the position of its buccal aperture in relation to the foot is borne in mind. Murex does not have so huge a foot and hence has to ride on its victim while drilling. (See Fretter and Graham, p. 245). For this reason the holes made by this predator are scattered over the entire surface of the shell as was the case of the shells which Mrs. Raeihle gave me. (See also Cooke 1895, Mollusca

in CAMBRIDGE NATURAL HISTORY, p. 60, fig. 22.)

In the LEAFLETS IN MALACOLOGY, published by Dr. S. S. Berry in California, vol. 1, no. 21 (Feb. 5, 1963), there is an account by John E. Fitch of a murex (Pterynotus trialatus Sowerby) which had been caught hitch hiking on the side of a juvenile giant sea bass (Stereolepis gigas Ayres). The author writes: "The murex, normally an inhabitant of rocky areas, was so tightly clamped to the right side of the fish, it could be pried loose only with considerable effort. It had been there sufficiently long to have become hungry and had rasped away a fair sized patch of scales." This is an extreme example of the manner in which murex attacks to obtain its food. And it is not difficult to visualize such an attack upon a rather large Spisula. But the question remains: What type of creature here in Rockaway can do this?

VALVE DRILLED BY A MUREX IN ROCKAWAY????



natural size

Fretter and Graham (p. 247) summarize the published data on Natica drilling. My data, based on one hundred shells, differs from this in showing that Polinices (a naticid) in Rockaway attacks precisely as many left valves of Spisula solidissima as right valves. The corresponding figures cited by Fretter and Graham are the following: Donax shells, 54.3% right valves, 45.7% left valves; ditto, right 57%, left 43%; victim not identified, 63.6% left; ditto, 43.75% left; ditto, 43 to 45% left.

The same authors also cite impressive data to show that at least in the case of the Baltic Macoma (Macoma balthica) the predator (Natica alderi) selects the spot above the victim's gonads for drilling. This may well be, but I guess that this selection is made on the basis of where the naticid can most easily attack. It has no notion of the organ it will find when it enters. Fabre has shown that the solitary wasp does indeed attack the central nervous system of its victim in order to stun but not kill it. But the predators of clams do not have the same problem.

NEWS OF SHELL CLUBS:

CONGRATULATIONS to the Sociedad Malacológica del Uruguay on their 10th Anniversary issue, dated October, 1967, of their COMUNICACIONES - 100 mimeographed pages of excellent material devoted almost entirely to the Mollusca of Uruguay and South America. We quote:

"Este No. 13, Vol. II de COMUNICACIONES, Boletín semestral que comenzó a publicarse en Setiembre de 1961, repite el saludo a todos los malacólogos del mundo y reitera los propósitos contenidos en nuestra Acta de Fundación y en el mensaje con que nos dimos a conocer....."

Information of the Club and its publication may be obtained from the Society's secretary, Mr. Eliseo Duarte, Casilla de Correo 1401, Central, Montevideo, Uruguay.

RECENTLY RECEIVED, a file of the TEXAS CONCHOLOGIST, the publication of the Conchology Group of the Outdoor Nature Club, Houston, Texas.* In addition to articles, the CONCHOLOGIST'S special project, continuing in each number, is a check list (with remarks) of the marine shells found along the Texas coast. Entitled NOTES CONCERNING TEXAS BEACH SHELLS, it is compiled by Helmer Odé and Anne B. Speers.

THE MIAMI MALACOLOGICAL SOCIETY has completed its first year, and it has been a busy one for the members. These workers voluntarily contribute their observations to, and have responded to many requests from, scientists working in the field of malacology. Almost all of the Society's active members have aquaria for better observation and study. Their publication,"M. M. S. Quarterly", is $1.50 per year to corresponding members. Mrs. Louise Futch, Treas., 114 West 32nd St., Hialeah, Florida 33012.

*Subscription for non-members of the Houston Conchology Group to receive TEXAS CONCHOLOGIST -- $2.00 per year. Helmer Odé, Editor, 4811 Braeburn Drive, Bellaire, Texas. Nine issues per year.

NYSC NOTES NUMBER 143 JUNE-JULY-AUGUST 1968

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MANSFIELD C. FULDNER
440 Riverside Drive
New York, N. Y. 10027

Vice President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

NEW YORK SHELL CLUB NOTES No. 143 June-July-Aug. 1968 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History, with the following exception as to Room:

NEXT MEETING: SUNDAY, SEPTEMBER 8th, 1968, at 2:00 P. M.
THE PLACE: 5th FLOOR LECTURE HALL
AMERICAN MUSEUM OF NATURAL HISTORY
PROGRAM: A SHOWING OF FILMS *
SHELL-OF-THE-MONTH
REPORT ON THE FIELD TRIP

*PROGRAM NOTE: It is planned to have at least two films -- one concerning intertidal marine life, the other(s) yet to be selected. To reach the lecture hall, use the elevators in the wing of the Museum facing Central Park West (the same bank of elevators that serve Room 319). Visitors are welcome -- there is plenty of room in the lecture hall.

ANNUAL ELECTIONS

As the June meeting terminates our fiscal year, the annual elections were held on June 9th. Retiring, President Mansfield Fuldner thanked the members for their cooperation during the past year and in turn was thanked for his services as president during a very successful season.

We are fortunate to have as our new president Mr. Milton Werner, Jr., and as vice president Mr. Mart Hulswit. Other elected officers and our volunteer librarian were thanked for their past services then nominated for an additional term in their present positions. The entire slate was unanimously voted into office, and we are sure that club members will continue to work with their officers for a further series of instructive, stimulating and enjoyable meetings.

A CORRECTION: The address of the treasurer of the Miami Malacological Society, as received last month, contained an error. We have been informed that the correct address is:

Mrs. Louise Futch, Treas.
144 West 32nd Street
Hialeah, Florida 33012

OF SEA AND SHORE (?)

We are uncertain as to whether the above heading is to be the title of his new publication (at any rate, it seems a good one), but we have word from Tom Rice that he hopes to have the first issue out in November. Mr. Rice is editor of the "Pacific Northwest Shell News", which many of our readers enjoy. He writes that he will send a copy of the first issue of this new magazine free to all members of the New York Shell Club. We'll look forward to it!

You are invited to submit articles for publication to the new magazine (as well as to these NOTES!). The address: Mr. Thomas C. Rice, Route 2, Box 483, Poulsbo, Washington 98370.

PUBLICATIONS:

REVIEW

THE SUBFAMILY TELLININAE IN THE WESTERN ATLANTIC: THE GENERA TELLINA (Part II) AND TELLIDORA. By Kenneth J. Boss.
JOHNSONIA, VOL. 4, NO. 46, April 17, 1968, pp. 273-344, pl. 143-163.

This latest in the series of monographs published as JOHNSONIA by the Department of Mollusks of the Museum of Comparative Zoology in every way lives up to the excellent record made by its many predecessors. This beautifully printed and superbly illustrated work is in all ways the very last word in the taxonomy of this attractive but difficult group of bivalves. It is lucidly written and easily followed. One can be sure that when one has identified his collection of Tellina from this paper, one has made use of the very latest concepts in the group. The illustrations are satisfactorily large and clear, and the line cuts add much to one's understanding of the points involved.

For the collector of the local fauna, the paper is particularly valuable for a comprehension of the three forms of Tellina (in the subgenus Angulus) known to occur in our area. Dr. Boss makes quite clear the distinctions between versicolor "Cozzens" DeKay, tenella Verrill. and agilis Stimpson, formerly known as tenera Say. (Incidentally, tenera had to give way to agilis because the name had been used by Schrank in 1803 and Say's use of the name dates only from 1822.) The descriptions of these forms have always puzzled this reviewer, mainly because the earlier writers made much of the "opaline sheen" as a distinguishing characteristic, especially of versicolor. Of course, that sheen is present in all three species, and probably many more tellins, and has no value for distinguishing one species from the other.

The most common shell of this subgenus that we find in the New York City area is of course agilis Stimpson. Long Island Sound, as Dr. Boss explains, was for a long time one of the few localities from which tenella was reported. Hence there is no doubt that the species must still occur there, but is probably mistaken for agilis. Versicolor is admittedly a rare species, but has been reported in some of the earlier faunal lists from New York. Of course, we have no way of knowing whether the determination in these cases was accurate. At all events, all local collectors should keep their eyes open for the rarer species of tellins reported from our shores. Dr. Boss was able to cite New York City localities only for agilis. This reviewer is certain that the other species also occur here.

Space forbids a further discussion of some of the other tellins, but anyone at all interested in marine shells should be sure to have this monograph in his library. And at $2.88, postage included, this is a rare bargain indeed. Write to Dr. W. J. Clench, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, 02138.

. . . M. K. JACOBSON

Editor's Note: The monographs of JOHNSONIA are among the biggest bargains in shell literature. The price is $4.00 per hundred pages, and you are billed as each 100th page you receive is reached or passed. To subscribe or to purchase earlier monographs, inquire of Dr. Clench.

REVIEW

THE SEA BRINGS FORTH, by Jack Rudloe. Alfred A. Knopf, 261 pages. 16 pages of halftone plates. 25 pen and ink drawings by Ingrid Niccoll. $6.95.

Can a college dropout find success as a purveyor of biological specimens? The answer is "Yes" if one is willing to work hard. "The Sea Brings Forth" is a narrative account of how such a young maverick established his own business -- Gulf Specimen Company. This is the true story of Jack Rudloe. The locale is the Upper Gulf of Mexico and the Florida Panhandle, but the actual towns have been given fictitious names.

Not a dry textbook type of tome on marine biology, this is written in a popular style somewhat reminiscent of that of the late Rachel Carson. Marine creatures are usually cited by their scientific names, as well as by vernacular names if there is a well-known one. The fishermen's colloquial names, such as "bulldozer" for the slipper lobster, are also given.

The real characters of the book are the "Cracker" fishermen who supply many of the marine specimens. Lusty, rough and ready, the many shrimpers, crabbers, and fishermen with their salty speech seem somewhat stereotyped. However, it was pointed out early in the story that literally "everyone was related to everyone else" (which may account for their homogeneity). These are the people who assist the "Yankee immigrant" or welcome him aboard their boats. In return for helping haul nets and cull fish, they allow him to select "trash" fish, crustaceans and other creatures.

The specimens, whether moray eels, jellyfish, or manta rays, are sent to university biological laboratories, researchers, or to museums. By selling samplings of the marine fauna of the Gulf, the author earns his living. As stated when releasing fish, "A collector needs luck... one way to get it is to give something back to the sea when the sea has been good enough to bring forth her treasures."

William E. Old, Jr.,
The American Museum of Natural History

A FOND FARE THEE WELL!

When the New York Shell Club reassembles in September of this year something will be missing that was present at every single meeting since the Club was formed in 1949. That "something" will be our member Anthony D'Attilio who is planning to move to California in August. It is absolutely true that Tony did not miss a single meeting, even when circumstances made it extremely inconvenient for him to attend. This, of course, is said in unmitigated praise of a faithful, devoted, enthusiastic member. But in a way a certain amount of the credit must necessarily brush off onto the rest of the membership. The fact that he found something of interest to make him want to come to each and every meeting is, all must agree, a testimony to a lively, interesting, vivacious group of people who, come rain or shine, presented enough matters of interest to keep attracting not one person only, but most of us.

A charter member, Tony served as president for two years, after having served as vice president and treasurer for three years. His frequent talks have always been informative and entertaining. His contributions to our NOTES being frequently of professional caliber, many are quoted in shell literature as fixed references. In the NOTES he also contributed his lively column on SOME RARER SHELLS, all of which he illustrated with his matchless skill. He was more than generous with his time and efforts when it came to determining species for other club members. His knowledge of the Muricidae is probably as extensive as any one's in the shell world today, so when Tony utters an opinion it is listened to with respect.

Nor was his work for the club limited to scientific and otherwise malacological matters: His expert auctioneering was always available for our club auctions. Both he and Mrs. D'Attilio have willingly contributed much time and effort to such mundane labors as the mimeographing of our NOTES and have, on uncounted occasions, acted as NYSC host and hostess to distinguished guests.

Lest this is beginning to sound like a lugubrious obit, let it be stated now loudly and clearly that Tony and Rose are in excellent health and that there is no doubt that the Californian shell club he will undoubtedly join will, come the year 1988 or so, be able to say that here was a member who in twenty years had never missed a meeting.

There is more to be said, but space forbids. For ourselves we can only say that we wish the D'Attilio's a long and happy life in the warmth and sunshine of California. It goes without saying that we'll miss them very much. There remains one faint hope: maybe, just maybe, the cold and dreariness of a New York winter will not look so bad when viewed from the choking smog of a Californian temperature inversion. And maybe we'll all see Tony and Rose again sooner than we thought possible!

mkj

LEON S. PEQUIGNOT

We were saddened to receive word of the recent passing of Leon S. Pequignot, of Akron, Ohio. His enthusiasm for shells and his close acquaintance with the Florida Everglades and the Florida Keys dates back many years -- to when one had to use a ferry to reach Marathon.

Perhaps his greatest enthusiasm was for Liguus, and his collection of this species is an outstanding one. His occasional letters on hunting for Liguus read like an adventure story (See NOTES Nos 70, 90, 101, 109).

Lee and his wife, Mary, both loving the sea and its shells, were ever ready to assist a beginner. They taught these writers more about field collecting in ten days than we would have learned by ourselves in years of sporadic collecting.

Though in failing health during recent years, his enthusiasm remained undiminished and his personality as vivacious as ever. His many friends mourn his passing.

Dorothy and George Raeihle

MOLLUSCANA

by W. W. Sutow, M.D.

(Reproduction in Abalone, Early Growth of Octopus)

November 7, 1965 . . . It took a while for the television picture to register. When it did, the spoken commentary began to make sense. This was a Sunday in Tokyo but I was looking at the bottom of the sea. The mound in the center of the picture suddenly moved. Several smoke-like trails spiraled upward through holes which became identified as the pores in the shell of a living abalone.

The photography was beautiful, technically superb - and became even better. The program concerned the birth of the abalone. Five meters deep, under water, the male abalone emitted puffs of cloudy material until the surrounding sea became murky. The cloud spread out and eventually reached other abalones. The female mollusk then released its eggs - minute, purplish, about 50,000 of them. Fertilization occurred in the water.

Then followed a sequence of micro-photographs that were truly spectacular. In 8 to 10 minutes, the fertilized ovum had begun to divide, becoming 2-celled in 100 minutes, 4-celled in 120 minutes. After 13 hours the many-celled embryo began to move, in a circular spinning fashion. It soon became free-swimming and by 20 hours the shell began to form. In 3 days the shell attained a coiled appearance and the internal organs had developed.

Feeding on microscopic food supplied abundantly by the environment, the abalone had become 0.3 mm (1/100 inch) at 10 days. The foot had developed and the creature now definitely resembled its parents - shell and all. By then, it had settled to the bottom of the sea and had begun to crawl about the surface of its anchorage. Moving, eating, growing, the abalone reached 1 mm size (1/30 inch) in 30 days. It was on its way toward the adult size of 4 to 5 inches some 5 years in the future.

November 29, 1965 . . . Before I left on this trip, Ernie Libby had wondered if the Japanese had succeeded in getting the octopus to hatch and grow to maturity under artificial conditions. He wanted some specific information. My initial inquiries failed to elicit anything more than a list of names of those who "might know". These references came from the National Science Museum and from Dr. Kuroda so that I was pretty well resigned to accepting as fact the paucity of productive research in this area.

Several weeks later, on the day before my departure from Japan, I opened one of the newspapers - and there was a half page spread, in colors, of several baby octopuses swimming. It was a lengthy headlined report of the first successful culture of the cephalopod outside its natural environment. Since octopus in Japan is a popular food item, the event was of economic significance.....

The report summarized the results of a four year study on the growth and development of the octopus. The work was done by Kozo Itomi at the Hyogo Prefectural Marine Experimental Station. Previous attempts to "grow" these cephalopods had all been unsuccessful. After birth, when the baby octopus is 3 mm (one tenth of an inch) long, each crea-

ture will tackle 10 mm sized plankton for food. At one feeding, the baby octopus will consume food totalling seven times its body weight. At this stage the octopus has stubby, short, fat tentacles. By the 20th day, the number of suckers on each tentacle will have increased to 12 and the animal is 7 mm in length. The octopus does not feed (in fact, it will starve to death) in bright light. It does well, however, in partial darkness where the light intensity is equivalent to that found about 10 meters (33 feet) below sea surface. Of 300 hatched, 18 survived 40 days and 7 of these reached the adult size of 1.6 kg (3½ pounds) and 40 cm (16 inches) in length. Mortality has continued high. In later studies, of 5,000 hatched only 20 or so survived. Most of the animals that died did so around the 20th day.

Excerpt from Dr. Sutow's feature,
"Molluscana", in TEXAS CONCHOLOGIST Vol II, No. 9, May 1966.

An excerpt:

MOLLUSKS AND WILDLIFE

The number of birds, mammals, fish, amphibians, reptiles and other creatures that feed upon mollusks is tremendous. Some of these animals depend for their food almost wholly on mollusks. The gentle little red-bellied snakes that we find so commonly under stones in pastures and fields live largely on slugs that would otherwise feed on plants that might be useful to man. In return for this service, many of the snakes get their heads snapped off by the first man that finds them.

Frogs and salamanders commonly feed on snails and slugs. Ordinarily, they eat more swiftly moving animals but snails are commonly listed in the stomach contents of these animals.

Of 46 common fishes from Oneida Lake listed as feeding on mollusks, six are reported to use mollusks as a source of more than half their food. The extent to which these fish depend on mollusks ranges from the sheepshead whose food is 100 per cent mollusks, through lake sturgeon and spotted sucker at 90 per cent, to other suckers and pumpkinseeds at about 50 per cent. For the most part, the fishes that feed on mollusks are bottom feeders, such as sturgeons, suckers, and catfish. Many other animals feed on mollusks. Some of these, such as crayfish, dragonflies, water beetles, damsel flies, giant water bugs, and horseflies are themselves important food for fishes. These animals are eaten readily by many of our important food and game fishes. Thus, the mollusks are a useful link in the food chain that supports these useful fishes. The next time you clean a trout or bass look through its alimentary canal and you probably will find the remains of some mollusks that your fish had eaten.

From: SHELL-BEARERS, Cornell Rural School
Leaflet, Vol. 42, No. 4, 1948-49.
Prepared and supervised by
E. Laurence Palmer.

PLEASE notify us promptly of any change in your address and be sure to include your correct "zip" code!

WHATISA.....?

by Roger Dunn

WHATISA SPECIES? A kind of life that can have grandchildren. For example, the horse is a species because it can breed with its kind and have little horses, and these can later have more little horses. The horse can also breed with an ass, but the result -- a mule -- is only a hybrid and not a species, because it can have children only rarely and grandchildren never. The word "species" is both singular and plural. The word "specie" (primary meaning "coin") can also mean "kind", but only in the sense of in kind. For example, "He bloodied my nose, so I repayed him in specie". (I bloodied his nose.)

WHATISA GENUS? A bunch of species. An arbitrary, man-made unit that should be an easily recognized grouping of related species so as to be of assistance in identification and classification. In practice it is often a bookkeeper's nightmare dreamed up by persons suffering from the malacologist's occupational disease called schilderitis. Its sympton is a compulsion to name a distinction without a difference. The plural of genus is genera, and there are too many of them.

WHATISA SUBSPECIES? An apprentice species. A geographic race obviously and consistently different from the typical species but potentially still able to interbreed with it. Analogous to a breed in dogs, except that man protects the purity of a breed with fences; nature does it with geography.

WHATISA SUBGENUS? A useless nuisance. Ignore it.

WHATISA FORM? Imagine a cross-eyed scallop. Some idiot would be sure to name it as a new species or subspecies, when in fact it would be neither. The name would be a synonym of the species name and have no standing, but if you wanted to call attention to your cross-eyed scallop you could put this name and the idiot's (preceded by the word "form") after the correct name and author.

WHATISA HOLOTYPE? The actual specimen used by the author when he named the species or subspecies. Also called a "type specimen".

WHATISA GENOTYPE? Nothing. It used to mean the type of a genus, but all other types are tangible specimens, whereas the type of a genus is an intangible concept -- a species. Hence in 1948 the International Commission on Zoological Nomenclature rejected "genotype" in favor of the less ambiguous "type species".

WHATISA SYNONYM? Another name for the same thing, as in crossword puzzles, but in shell nomenclature they come in two sizes -- senior and junior. The senior synonym is the one that was published first, and it is the correct name if either is. When a collector uses the word synonym alone he means the junior synonym, which is no good.

WHATISA HOMONYM? The same name for two different shells in the same genus. These also come in two flavors, and the shell receiving the junior homonym has to be renamed.

WHATISA TOPOTYPE? When Gabb named Conus floridanus in 1869 he put the Holotype in the Philadelphia Academy with locality data of Tampa Bay. So, if you find a Conus floridanus Gabb in Tampa Bay you have a Topotype. It's simply a shell from the type locality. Big deal!!

WHATISA METATYPE? A shell personally identified by the man who named it. (Pretty good identification, but not infallible).

WHATISA -- Murex joeblokei (Fudd 1876) (Syn. maryae Clud 1870 non Thud 1865) cf minibikinius Dud 1874 ... ? It's a shell and its synonomy. The first word is the Genus and is always capitalized. The second word is the Species and is never capitalized. The letter "i" on the end of the species word says it was named for a man (Joe Bloke). Next we see that the author of the species was a guy named Fudd, who named it in 1876. He's in parentheses because he named it under some genus other than Murex, but it is Murex now. And if this were a Subspecies, the subspecies name would follow the species name and the author would be the author of the subspecies. Next we read that maryae Clud 1870 (named for a girl -- Mary) is a synonym. But 1870 is earlier than 1876; so why isn't maryae the correct name instead of joeblokei? Because the "non Thud 1865" means Thud named a Murex maryae on this still earlier date but it was a different shell. So Clud's maryae was a junior homonym and no good. So the name is still joeblokei unless -- Well, that "cf" is abbreviation for the Latin "confer" and translates "to be compared to"; so maybe this shell is minibikinius after all -- and maybe not! Some days it just doesn't pay to get up.

WHATISA HYPOTYPE? The actual shell that is described, pictured, or listed. For instance, our club insignia is a picture of a shell, and that shell is the Hypotype of that picture.

WHATISA PARATYPE? When an author names a shell from study of a number of specimens he should designate one as the Holotype and the rest as Paratypes. Paratypes may be distributed to several museums and can bat for the Holotype if it is lost.

WHATISA SYNTYPE? If an author fails to designate a Holotype, then all shells he is known to have based the name on are called Syntypes and are of equal rank, even if several species! So -- -- --

WHATISA LECTOTYPE? If a named shell has only Syntypes and no Holotype then any reviewer may designate one of the Syntypes to serve in place of a Holotype, and it is called a Lectotype.

WHATISA HOMEOTYPE? A specimen that a competent observer has compared directly with the Type and found to be the same species.

...But don't worry! Millions of people don't know any of this and are sane and happy anyway.

St. Petersburg Shell Club Booklet (21st Annual Shell Show, Feb. 28 - Mar. 3, 1968, pp. 6-8).

Copyright 1968 St. Petersburg Shell Club --- Permission for reproduction of the above or other articles or photographs in the booklet can be obtained from the Editors, George and Pat Torrance, 5561 Ninth Avenue North, St. Petersburg, Florida 33710.

HAVE A WONDERFUL SUMMER, AND DON'T MISS THE SEPTEMBER 8th MEETING IN THE LECTURE HALL -- IT'S ANOTHER "SPECIAL"!

JUNE, 1968, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome these new members and bring you to date on address changes received since our January, 1968, Supplement to Roster.

NEW MEMBERS

BEEBE, Rev. Lawrence	401 E. 81st St., Apt. 16E, New York, N. Y. 10028
BLANKENSTEIN, Miss Carole	490 Blaine, Riverside, California 92507
CODDINGTON, Mrs. D. H.	111 East 80th St., New York, N. Y. 10021
D'EMIDIO, Vincent	? ? ? (Please advise.)
FRENCH, Mrs. Hubert	Box 87-C, Apt. 1, Key Largo, Florida 33037
GARELIK, Pinchas	448-1 Eilat, Israel
GOLDSHEIN, Miss Sandra	620 East 20th St., New York, N. Y. 10009
GRAUER, Miss Zara	227 East 57th St., New York, N. Y. 10022
GROSSER, Mrs. Regina	19 Cuming St., New York, N. Y. 10034
HEMPSTEAD, Mrs. Elinore	150 East 73rd St., New York, N. Y. 10021
HENDRICKS, Miss Dorothea	307 West 83rd St., New York, N. Y. 10024
HUBBARD, Mr. Robert D.	3957 Marlo Court, Seaford, New York 11783
KELL, Mrs. Mildred	487 Jefferson Road, Princeton, New Jersey 08540
MUELLER, Mrs. Muriel E.	54 Nestro Road, West Orange, N. J. 07052
PUTNAM, John Francis	84 Jane Street, New York, N. Y. 10014
RAUSCHER, Miss Mary	449 East 14th St., New York, N. Y. 10009
SCHOONMAKER, Mrs. Thelma	480 Hunter Road, Ridgewood, N. J. 07450
SHELDON, Mrs. Walter	1558 North Ocean Way, Palm Beach, Florida 33480

CORRECTIONS TO JANUARY, 1968, SUPPLEMENT TO ROSTER

WIGHTMAN, Dr. Eugene P.	85 Harding Road, Rochester, N. Y. 14612
ROBIN, Mr. & Mrs. Melvin	(were erroneously listed as "Robin Meldrin") Old Sterling Rd., Warren Twp., N. J. 07060

CHANGES IN ADDRESS

CULP, Mr. Derrin CULP, Mr. & Mrs. Robert	310 West 261st St., Bronx, New York 10471
GOLDEN, Dr. Joseph	1515 Hanover Ave., Richmond, Virginia 23220
NANKERVIS, Mr. & Mrs. Ron	2557 Standish Ave., Union, New Jersey 07083
PETTITT, Mr. Charles	Zoology Dept., Manchester Museum, The University, Manchester 13, England
UNGER, Arthur A.	Box 4054, Sunnyside Station, Long Island City, New York 11104
WARSHAW, Mrs. Sylvia	Apt. 115 - Allamanda Gardens #1, 1660 N.E. 191st Street, North Miami Beach, Florida 33162

CHANGE OF NAME AND ADDRESS

SCHROTH, Miss Marian M., of Woodhaven, N. Y. is now Mrs. Robert D. HUBBARD, 3957 Marlo Court, Seaford, New York 11783

NYSC NOTES NUMBER 144 SEPTEMBER 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, OCTOBER 13, 1968, at 2:00 P. M.

PROGRAM: MURICINAE and OCENEBRINAE
A SHELLECTURE: Color slides with
taped lecture by Dr. E. H. Vokes.

WITH THE A M U AT CORPUS CHRISTI
by Alice Barlow. (with color slides)

SNAILS-OF-THE-MONTH
by Dorothy Raeihle

"SHELLS OF JAPAN"

In NOTES No. 142, May 1968, we carried a review from the "Hawaiian Shell News" of SHELLS OF JAPAN, an excellent little paperback with text in Japanese. Bill Murphy also gave details as to how he had ordered, and received, the book. Correspondence this past summer revealed that approximately fifteen orders from the New York and surrounding areas had been returned to senders by volunteers who were filling in temporarily at the Hawaiian address.

Because the fifteen returned orders were quite probably from NYSC members who were thus inconvenienced, Mr. Murphy has kindly ordered fifteen copies to accommodate those attending members who were disappointed. He has received confirmation of his order from the Museum Shop, Bishop Museum, Honolulu, Hawaii 96819, with the news (1) that the books are temporarily out of stock, and (2) that the price will be $1.50 plus 12¢ postage = $1.62 per copy.

Mr. Murphy will announce the books' eventual arrival at a scheduled meeting.

FRED R. TOBLEMAN

It was with sadness that we learned of the death on July 2nd of Fred Tobleman, at age 76. A charter member of the New York Shell Club, his was a perfect attendance record until a broken leg kept him temporarily at home. He became quite ill in April of this year and died while in the hospital in Neptune, New Jersey. Our deepest sympathies are with his wife, Minnie.

He was also a charter member of the American Malacological Union and a life member of the New York Microscopical Society.

He addressed the New York Shell Club on several occasions, discussing topical or favorite subjects which included "Radulae and How to Prepare Them", "Naticidae", "The Bolton Catalogue", etc.

Mrs. Tobleman informs us that his large personal collection has been purchased and will be on exhibition in a small private museum.

Mrs. Tobleman has recently moved to 48 Pitman Avenue, Ocean Grove, New Jersey 07756.

THE KATSARAS AUCTION

Nick Katsaras' auction September 15th was as fine as ever. He had brought together a selection of specimen shells from all over the world, including some rarities that you might not find even in a museum. Now they are in mostly private collections in New York, nearby States, and Florida.

Although we did not list the rarities to report here, we well remember the largest and most perfect Venus Comb Murex we have ever seen, the assortment of precious Cones and Volutes, the exquisite Marginellas, the pair of juvenile _Thatcheria mirabilis_ which everyone seemed to want, the variations (ecological?) in the _Scaphella_, the unusually colored _Pecten nodosus_, the rare _Vasum flindersi_ and _Voluta vexillum_, the dainty _Latiaxis_ that Nick compared to flowers in stone, the elegant _Mitra_ -- and so many more.

The 3:30 intermission gave time for refreshments and a social break, then bidding resumed and continued at a steady pace until the very last shell was taken from the tables about 5:30 PM -- a tribute to the fine quality of the shells Nick had offered.

FACSIMILE OF SWAINSON'S "EXOTIC CONCHOLOGY"

A facsimile edition of William Swainson's EXOTIC CONCHOLOGY is being published by Van Nostrand Co. It is illustrated with reproductions of the original 48 full color lithographed plates. Dr. R. Tucker Abbott has written the introductory material and a modern analysis to accompany Swainson's descriptions.

List price of this limited edition is $30.00 per copy. However, Dr. Abbott announces that Shell Club members may obtain the book at a discount of 25%. If you contact the publisher, mention your membership in the New York Shell Club, and that you were referred by Dr. Abbott.

ANNUAL FIELD TRIP AND OUTING

We had a beautiful day for our field trip and outing June 22 to Orient Beach State Park, and a good number of NYSC members made the trip, meeting in the picnic grove for lunch. There was plenty of time to shell both before and after the low tide at 2:00 PM -- and plenty of beach to cover. We know of no records established that day, either as to species or specimens collected -- but that cannot be expected on every trip.

One of our most vivid memories is of a very small child sitting quietly for a very long time, absorbed in watching living _Aequipecten irradians_ active in a pail of sea water. More of us should observe so intently!

Although in general there may not have been as many living species found as on previous trips, the _Littorina saxatilis_ made up in numbers for any scarcity of other species. From tiny juveniles to adults, they were _extremely_ numerous on the pebbles and broken shell which paved the intertidal zone of the back bay. In 1960 they were there in only moderate numbers compared to this year's "bloom".

AN OBSERVATION OF LITTORINA SAXATILIS Olivi

by Dorothy Raeihle

I always like to observe the living mollusks we find, so at the NYSC field trip to Orient in May, 1960, I was prepared with containers to bring home some live specimens -- Littorina saxatilis, a few Crepidula fornicata, a Bittium alternatum, four Acmaea testudinalis. The Acmaea were short-lived; the Crepidula lived a little longer and the females were brooding eggs (See NOTES No. 86). At first I had an assortment of small specimens in a tall glass of sea water, a good way to exhibit the little snails to interested friends. However, I would suggest that even temporarily something other than a tumbler be used as a container, as it can happen that while someone has their nose in a book they may reach out and pick up the wrong glass. That's how I lost the Bittium alternatum -- the first one I had ever found.

The sea water in the container was changed every few days or when it appeared to be fouling. During one of these changes I used a magnifying glass to examine some tiny specks that did not pour out with the water, and found that they were minute snails clinging to the sidewall. A few days later I saw a Littorina saxatilis "dirtying" the glass above the water line. I grabbed for the 7X lens and watched while the snail continued to deliver her young. The female's foot clung firmly to the glass sidewall, there were slight movements of contraction on the left side of the animal next the lip of the shell, and emerging from the aperture was a sheet of gelatinous substance containing newborn snails in various stages of development. Some were "born walking" and immediately clung to the glass or to the adult's shell. Their tiny white feet, tentacles and black eye spots were clearly discerned. Others drifted free of the "jelly" and floated to the bottom of the container. I collected some with an eyedropper and put them under the microscope. They were still enclosed in their egg cases, and while I watched I saw them break out of their transparent spheres much as baby chicks break through their shells. The snail would work with head and foot until the broken membrane of the egg case finally stood like a ruff around the aperture of the shell and did not impede the animal's movement. For a while this filmy material floated like a veil from the back of the tiny animal's shell; it took sometimes as long as two hours for the shreds to float free and sink to the bottom of the container.

Egg cases that were prematurely extruded along with the fully developed contained embryos to the veliger stage suspended in the center of the egg case. Even those embryos that had developed to a size more than half the diameter of the egg case did not develop further during the week or so life could be detected.

The Littorina saxatilis observed to reproduce ranged in size from 5/16" to 3/8" in diameter; they delivered young while at room temperature and while refrigerated at 46° F. One snail delivered young two days in a row, then not again for a week. Only one "litter" had most of the young born fully developed. The young snails, even though they were observed feeding on algae at two weeks of age, did not survive much beyond that. Later observations seem to indicate that in addition to other unfavorable conditions in captivity that the room temperature was too high. Both young and adult Littorina saxatilis collected in June of 1968 are still alive and have produced young -- at 46° F.

GEOGRAPHICAL DISTRIBUTION OF MOLLUSKS

J. J. Parodiz

(This report is based upon a lecture by Dr. Parodiz given to the Pittsburgh Shell Club on February 4, 1967.)

Zoogeography is, within the natural sciences, a relatively new discipline. It began formally with the Darwin-Wallace paper in the "Proceedings of the Linnean Society of London" in 1858. Wallace's works on distribution complemented Darwin's "Origin of Species". Darwin was the first to realize and publish the relationship between extinct and living faunas, explaining their transformations as a result of the geologically changing world.

Living animals have been classified, geographically, into six principal regions:

Palearctic - All Europe, most of Asia, plus the Mediterranean coast of Africa.
Ethiopian - All Africa (except the Mediterranean) plus Arabia.
Oriental - India, southeastern Asia, plus Indonesia.
Australian - Including New Zealand and New Guinea.
Nearctic - All North America (except Mexico).
Neotropical - Central America (including Mexico and West Indies) plus South America.

Our present concern is with the seas and mollusks which surround these lands. Differentiation of malacological regions was recognized by Swainson as early as 1835. Forbes later continued the work. In 1856, Woodward established 18 provinces for marine mollusks and 30 for land and freshwater shells. Time limitations, on this occasion, do not allow for complete consideration of all these provinces. We shall restrict ourselves to the marine mollusks of the New World.

With the exclusion of the Arctic and Antarctic, the coasts of the Americas can be divided into 9 malacological provinces which are:

Boreal or Novascotian - From Newfoundland to Cape Cod, Massachusetts.
Carolinian - From Cape Cod to about Cape Kennedy in Florida, on the ocean side, and from the west coast of Florida all the way around the Gulf of Mexico to Tampico, Mexico.
Antillean or Caribbean - Touching the Atlantic side of Florida from Cape Kennedy to Key West, all the Caribbean islands (including the Bahamas), the coast of Central America to as far south as Santa Catharina, Brazil.
Argentinian - Extending from Santa Catharina (Florianopolis), Brazil to Golfo Nuevo (Peninsula Valdez) in northern Patagonia.
Magellanian - All southern Patagonia and Tierra del Fuego on the Atlantic side, north to Concepción, Chile, on the Pacific.
Peruvian - From Concepción, Chile, north to the Gulf of Guayaquil, Ecuador.

Panamian - From Guayaquil to Baja California.
Californian - From Bahia San Sebastian, Baja California to the State of Washington.
Aleutian or Alaskan - From Vancouver, British Columbia to the Bering Strait.

The provinces which belong to the temperate or cold waters, i.e. Carolinian-Californian, Aleutian-Boreal, Magellanian or Argentinian-Peruvian, occupy relatively the same latitudes on the Atlantic and Pacific, but the tropical waters of the Panamian and Antillean do so only in part. The Panamian reaches farther north than the Antillean, but in the south it stops at the equator. The Antillean extends from above the Tropic of Cancer to below the Tropic of Capricorn. This is due to the differences in the ocean currents. The Peruvian current, which begins in southern Chile, cools the coastal water almost as far as the equatorial line. On the Atlantic, the currents push warm waters north to Florida and south to the La Plata River.

The fauna is not sharply divided from one province to the other. Great proportions of transitional species extend north or south of their provincial limits. Ocean temperatures and salinity are not perfectly uniform and constant in each zone; they fluctuate according to the periodical movements of the oceanic masses causing shifting and overlapping of veliger larvae. The Antarctic convergence, for example, advances north and returns every year. There are cycles of these movements increasing in magnitude every 4½, 9, and 18 years, with a maximum "ingression" every 111 years. These phenomena were better studied on the western coast of Europe, and verified by the author in the southern Atlantic for the annual and 4½ year periods.

Some divisions within the well-known provinces can be made. In the Carolinian, the northern part from Cape Cod to Virginia (called Virginian) differs somewhat from the southern part (called Georgian). In the very large Antillean province, differences have to be expected between those of the Caribbean proper and the lower part, namely Brazil. Little is known of the malaco-fauna of the northern coast of Brazil. When better studies are obtained a separate province will probably be needed.

Apart from transitional species, there are others which appear along several provinces; for example Anachis obesa is known from North America to Patagonia and Epitonium georgettina from Patagonia to the Antilles. There are at least 21 known species ranging from North America to Uruguay, and another 22 from the Antilles to Buenos Aires.

Certain species show a peculiar, discontinuous distribution. Crepidula onyx is well-known in the Pacific from California to Peru; southward it vanishes. It is not found in the Magellanic region, but reappears on the Atlantic side in northern Patagonia. We should look for the cause of this in the distribution of oceans and land in the geologic past, when communications between Pacific and Atlantic waters took place at times. The Gulf of Mexico, during the early Tertiary, extended as far north as Kansas and covered many of the southern states. From the Florida Pliocene many fossil marine shells are known, belonging to genera which today are typically tropical.

* * (Reprinted from PITTSBURGH SHELL CLUB BULLETIN of March, 1968)

AMERICAN MALACOLOGICAL UNION NEWSLETTER

Vol. I, No. 1 September 1968

(Editorial Note: This newsletter will appear quarterly or as the material at hand warrants. We intend to use it to establish closer contact among the membership than is possible at present with the Annual Reports and the Annual Conventions alone. Member Shell Clubs are invited to reproduce the numbers in their publications. We would appreciate suggestions as to what the members would like to see published here, e.g. scientific or personal items or both, etc. Suggestions should be sent to A M U Publications Editor, Morris K. Jacobson, 455 Beach 139th Street, Rockaway Beach, New York 11694.)

WHY JOIN THE AMERICAN MALACOLOGICAL UNION?

This is the time for people to get "involved". They are doing it at community, State and National levels. Why? Because they are enriched by it and also contribute something. The A M U is the only Western Hemisphere organization which serves all people interested in mollusks from casual beach comber to scientist. What can the A M U do for you? It can give you a base line for your molluscan efforts: information on local shell clubs; on how, where, when and what to collect; how to prepare your shells and arrange your collection and more; your A M U Annual Reports Bulletin is loaded with the newest information on classification and scientific developments in malacology; all members can attend the Annual Meeting, a get-together which is always held in an interesting part of North America usually teeming with shells of some kind; and the newest benefit for members is this fledgling newsletter which we hope will grow into something big. What can you do for the A M U? Join it and support it, contribute your ideas on mollusks, attend the meetings, contribute to the newsletter. You can't help but be enriched in the process.

Joseph Rosewater, President.

THE THIRTY-FOURTH ANNUAL MEETING OF THE AMERICAN MALACOLOGICAL UNION

Corpus Christi, Texas July 15 to 19, 1968

"You-all come to Texas in 1968 and we'll take it from there!" They promised and they delivered and it all added up to what was perhaps the finest annual meeting the American Malacological Union has ever enjoyed. Certainly it was the largest, but for Texas that fact surprised nobody.

Corpus Christi had been chosen by the six shell clubs whose members jointly hosted the meeting as offering most in a combination of good hotel facilities and easily reached collecting areas for land, freshwater and marine mollusks. Located high on a bluff overlooking Corpus Christi's fabulous harbor, the Robert Driscoll Hotel provided fine lodging, restaurant and meeting facilities.

On Sunday as always a goodly percentage of the delegates began to assemble and by evening at least fourscore were on hand to enjoy the first of a series of "happenings". This was a Plantation Party hosted by the Padre Island Shell Club whose members served punch and other

goodies, sparing no effort to make their guests feel welcome and comfortable.

Another team took over in the morning, manning the registration desk in the lobby. As each guest registered he was given a bag packed with articles ranging from sunglasses to potato chips, all products of local manufacturers or their dealers. At one o'clock most of the 177 who ultimately registered had taken seats in the hotel's Flamenco Room, President Arthur Clarke introduced The Honorable Jack Blackwell, Mayor of Corpus Christi, and the 34th Annual Meeting was under way.

Margaret C. Teskey

BUSINESS MEETING -- ELECTIONS

At the business meeting on Thursday, July 18th, officers for the coming year were elected by unanimous vote: President, Joseph Rosewater; Vice-President, Alan Solem; Secretary, Margaret Teskey; Treasurer, Mrs. H. B. Baker. Pacific Division officers elected June 20 at Asilomar: Chairman, Bruce Campbell; Vice-Chairman, James McLean; Secretary-Treasurer, Ruth French. Morris K. Jacobson continues as Publications Editor. Councillors-at-large elected at Corpus Christi are Robert Robertson, Myra Taylor, Donald Shasky and Donald Moore.

The A M U accepted the invitation of Mrs. Margaret Teskey to hold the 1969 meeting in Marinette, Wisconsin, July 21 - 25.

THE AMERICAN MALACOLOGICAL UNION, INC. is a scientific, non-profit organization dedicated to the study and appreciation of mollusks and their shells. Membership is divided about equally between amateurs and those who make malacology their career. Annual dues for residents of the U. S. and Canada, $4.00 as of January 1, 1969; residents of the West Indies and South and Central America $4.50 because of higher postal rates; additional members of a family $1.00 each. All interested persons are cordially invited to affiliation.

- -

To the Secretary, AMERICAN MALACOLOGICAL UNION, INC.
Route 2, Box 318
Marinette, Wisconsin 54143

I hereby apply for membership in the American Malacological Union, and enclose check for dues as indicated above.

Name ....

Address ....

City ....State ....Zip Code.......

Special Interest ....

NYSC NOTES NUMBER 145 OCTOBER 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, NOVEMBER 10th, 1968, at 2:00 P. M.

PROGRAM: SULU EXPEDITION *

by George and Mary Kline

SHELL-OF-THE-MONTH (To be announced)

*The latest of the Klines' adventurous excursions for the ANSP. Their tales of travels for shells are accompanied by color slides of where, what and how. Don't miss it!

NOTICE OF ANNUAL MEETING
WESTERN SOCIETY OF MALACOLOGISTS

THE SECOND ANNUAL MEETING of the Western Society of Malacologists will be held at the conference grounds at Asilomar State Park, Pacific Grove, California June 18 to 21, 1969. Scientific papers, symposia on related problems, and exhibits will be presented in various fields related to the study of malacology and invertebrate zoology.

Officers for the coming year who were elected at the 1968 conference are as follows: President, Dr. William K. Emerson, American Museum of Natural History; First Vice President, Dr. A. Myra Keen, Stanford University; Second Vice President, Mr. Eugene Coan, Stanford University; Secretary, Mrs. Paul O. Hughes, Los Alamitos; Treasurer, Mrs. Leroy Poorman, Pasadena; Members-at-Large, Dr. Judith Terry, Palo Alto, California and Miss Betsy Harrison, Honolulu, Hawaii.

All persons interested in malacology and conchology are cordially invited to attend and participate in the coming conference. Excellent accommodations in varying price ranges (American Plan) will be available for those making their reservations early.

For information on the conference or on membership in the Society please address the Secretary, Mrs. Paul O. Hughes, 12871 Foster Road, Los Alamitos, California 90720.

THANK YOU ALL from ROSE AND TONY D'ATTILIO

To the members of the New York Shell Club and all our friends who have expressed themselves so kindly on our moving to California, we wish to express our sincerest thanks for your well-wishes. It was quite a wrench to take leave of all our friends of so many happy moments which started so well with the founding of the New York Shell Club. However, Rose and I have kept our hearts and minds for all our many years together on the goal of living at some future time in Florida or California. This long awaited moment finally came and we are now in California close by our daughter and her family.

How much time I will have available to continue my serious work on mollusks, especially the family Muricidae, I can't tell at this time. Meanwhile, we have visited with some of the very friendly collectors here on the west coast and plan to attend some of the meetings of the two shell clubs that meet separately at the Los Angeles Museum, and possibly some meetings of the San Diego Club.

Much beyond this I have little to report. Various problems and situ-

ations will take time to be resolved. However, I am eagerly awaiting the time when I can go on with my work in shells and I promise to report matters of general interest to you.

With cordial regards to all, and again thank you for your kind thoughts and best wishes.

Rose and Tony D'Attilio

MASS DISCOVERY OF A HITHERTO RARELY FOUND ANTILLEAN SPECIES

by Morris K. Jacobson

One of the rarest shells in the western Atlantic is Haliotis pourtalesi Dall, one of the only two species of abalone known from this coast. Up to 1944 only 8 specimens had been reported. At the AMU convention in Corpus Christi this year, Mr. Helmer Odé reported the discovery of another example in the Gulf of Mexico and Dr. H. W. Harry reported one from Yucatán (VELIGER October 1968, 11:140).

In a paper published in Cuba on May 7, 1968, in the series called POEYANA, Dr. Hortensia Sarasúa of the Instituto de Biología of Havana reported the finding of no fewer than 101 specimens of this species, 88 of which were in perfect condition. They varied in size from tiny (3 to 4 mm.) to one specimen of 29 mm., which is very near the largest size ever given for this generally small species.

Dr. Sarasúa reported that the specimens were found in material dredged about 15 years ago for commercial purposes from 20 to 35 fathoms in the open sea off Havana. The specimens were apparently all taken dead. Dr. Sarasúa writes that in her opinion this species lives in depths less than 100 fathoms, probably between 30 and 70 fathoms on "rocky bottoms difficult to dredge alive". However, currents probably wash dead specimens to shallower or deeper depths.

The collection of the American Museum possesses three specimens as follows:

107598 - 90 fathoms, 90 mi. west of Ft. Myers, Florida, J. Moore, leg. (A poor, worn, colorless specimen.)

125538 - 92 to 100 fathoms, 5½ mi. southeast of marker B at Elbow, Key Largo, Florida, Burry leg. (A somewhat better specimen with slight signs of reddish color.)

100599 - 100 fathoms west of St. Petersburg, Florida, J. Moore, leg. (A fairly good specimen, good color, but evidently taken dead.)

This species was described and beautifully figured in JOHNSONIA 1946, Vol. 2, No. 21. Here can also be read the entire history of the species, from the destruction of the first specimen in the Chicago fire of 1871, to its being named by Dall ten years later from memory, and its temporary confusion with H. dalli Henderson from the Galapagos. Abbott (AMERICAN SEASHELLS, p. 94) describes but does not figure the species.

OPPORTUNITY TO PURCHASE: Three-year-old, little used Gestetner mimeographing machine, with postcard attachment and supply of stencils and paper. Also: Pilsbry's LAND MOLLUSCA OF NORTH AMERICA, Vols. 1 & 2, bound. -- Mrs. Jos. Zager, 200 Mt. Pleasant Ave., West Orange, New Jersey 07052. (Settlement, properties Garden State Shell Club.)

SHELL COLLECTING IN SPAIN AND PORTUGAL

by Anne and Albert Taxson

In the spring of 1967 we joined a tour to the Iberian Peninsula but, wanting to see more of the real Portugal and Spain than permitted by the confinement of an organized tour, we made our own reservations in Lisbon and took what came along in the other places.

We spent five days sightseeing in and around Lisbon -- in the vicinity are the Monastery of Geronimos, the Tower of Belem, Sintra, Cascais, Estoril, Nazaré and Fatima. We were impressed with the simple grandeur of the fluted columns at Geronimos and after walking through the Cathedral we found ourselves in the garden of the Cloisters. Automatically I glanced at the ground under the rose bushes. Sure enough, I spotted one dead shell, then another. Soon Anne and I were strolling along the flower beds looking for snails. We spotted the live ones, Theba pisana Linné, on the sides of the limestone steps. The nearby Belem Tower, on the Tagus River, is advertised as a fairy castle. I was about to point out an interesting feature to Anne when I saw her crouching among the moss-covered stones at the river bank. The prize was dead shells of Nassarius reticulatus Linné.

And so, five days of sightseeing in and around Lisbon. At Sintra, high in the wooded hills where mollusks should abound, we found one lonesome snail. In Cascais we found a path leading to a tiny beach edged by low cliffs of jagged and treacherous black rocks. A native woman and a young girl were bent over looking for shells. Anne proceeded to socialize while I started to examine the rocks in the spray zone where Littorina neritoides Linné were cached in the crevices. I also found limpets, Thais lapillus, Monodonta, Gibbula and, as luck would have it, a live Ocenebra erinacea Linné. Then Anne called that she needed some money. The woman made little dolls from dead shells and Anne bought a few. Then I displayed what I had found. My wife was dutifully impressed and handed me what she had collected. It was a collection of the most awful beach-worn shells --

"You don't have to keep them if you don't want to...", she said. Not wanting to hurt her feelings, I threw only a few away. Now some of those shells repose in the collection of the American Museum!

All tourists go to Nazaré and Fatima. So much has been published about these attractions that when our bus made a twenty minute stop at Nazare the high prowed, colorful boats and the fisherfolk in native attire seemed familiar and commonplace. The rocks were about a quarter of a mile away. "Look around while I go over to those rocks and see if I can find anything", I suggested. Without waiting for possible objections, I ran across the sandy beach and was soon prying off limpets and some Thais lapillus. Turning to look behind a huge boulder, whom did I see but Anne, holding her shoes in one hand and some Mytilus edulis in the other! Back in the bus, Anne wrapped her wet and tarry feet in paper napkins to protect her shoes, and lectured me about leaving her deserted and alone.

At Fatima we found two snails under some rocks -- Otala lactea Müller and Rumina decollata Linné.

A day's journey from Lisbon by train lies Sagres, a little village on the southern coast. It is surrounded by flat, sandy fields full of

rocks and a long-leafed cactus. This cactus grows all over the coasts of Portugal and Spain and is the habitat of a few species of snails, mostly Theba pisana Müller and Pseudotachea splendida Draparnaud. The coast line is rocky and rugged, with small beaches set in among the picturesque cliffs. There was nothing to do except eat, walk and collect shells. A good variety of rock shells live in the intertidal zone. On the beach we found only dead shells -- Cytherea chione Lamarck, Tritonalia nodifer Lamarck, and others. Among the beach shells, most of them badly worn, we found two Cymatium. At home, I examined the shells but could not find a clue to their identity. After a while I decided that one was too badly worn and dropped it into the garbage. The next day I took the other to Bill Old at the Museum. His eyes went wide, and he immediately asked where we'd found it. He then said that this was the first record in the Museum of Bursa scobiculata Linné being found in the 20th Century. I looked weakly at my wife and asked, "What did you do with the garbage?" "I ate it!", she shot back.

Another good shell from Sagres, dead but in nice condition, was Pseudomurex meyerdorffi Calcara.

After four days we left Sagres for Spain and Seville. From Seville we went on to Algeciras, and then by boat to Tangiers. During a sightseeing tour I squeezed in five minutes on the rocks at Cape Spartel, getting some limpets, Monodonta, and Littorina. The shells turned out, upon examination, to be oddballs. We never got back to those rocks, but spent an hour on the municipal beach finding live Donax politus Poli and a good series of dead shells in beach drift, including Marginella, Turritella, and Calliostoma. We visited Gibraltar, but the armed forces installations make most of the shore line inaccessible. In the late afternoon we returned to Algeciras and quickly changed into old clothes and sneakers for a walk around the bay.

A canal cuts the city of Algeciras in half. The raw sewage and wastes of the whole community are dumped into this stream and are carried into the bay with the ebbing tide. The shore line is coated with this disintegrating abomination, and should you step off the gravel path you are in a stinking open sewer. It was with great surprise that, after walking about a mile along the edge of the bay, we found live limpets on the filthy rocks. We kept walking and finding dead shells, including a beautifully colored Epitonium clathrum Linné. As we got further away from the town the water was clearer and the odor less pungent. Live invertebrates appeared, and we saw anemones, crabs, Monodonta articulata Lamarck, Cerithium rupestre Risso and a more varied and interesting accumulation of dead shells. I was anxious to go on, but it got dark and we had to start back. On the way to town we almost decided to stay another day. We had been told that Cypraea were found here, and it was a great temptation. But this was a sightseeing trip, and with regret we gave up the idea.

The next day we left for Torremolinas, stayed overnight, found no shells and went on to Granada. Here we might have found some land and freshwater snails but I got a case of what is humorously referred to as Spanish ptomaine. I was quite ill for a week and a half, but we left for Valencia on schedule.

In Valencia we were royally received when we visited a pen pal, and left his home with a large carton of shells, including a twelve inch Charonia nodifer Linné.

Valencia is not a large city and we walked all through it. We wandered into the Botanic Gardens one afternoon. The caretaker grabbed us when we showed an interest in the plants. He spoke in Spanish but being familiar with the flowers we understood him pretty well and Anne pointed out the varieties she had on our window sill. When we left him we saw some cactus and, sure enough, found on them the same snails, Theba pisana Müller and Pseudotachea splendida Draparnaud, that we found all over Portugal and Spain. We took a sample and wandered off. I lagged behind to investigate what seemed to be a garbage dump against a stone wall and was finding Pomatias elegens Draparnaud when my hunt was interrupted by Anne, calling in a refrigerated voice, "Albert, you are getting yourself dirty!" "But Anne," I remonstrated, "this is where you find snails," and showed her a handful of the operculates. For the next fifteen minutes we were both searching in the litter!

From Valencia we sailed to Majorca. At the pier we were harangued into seeing the Hotel Oasis in Ca'n Pastilla, outside of the Capital City of Palma, with the understanding that if we didn't like the place we could leave. It was a very nice hotel and we took the room. The beach was across the street and there were rocks. There was also a small lagoon with turtle grass growing under the water, and in this environment -- in the sand, on the rocks and in the grass -- we found more than fifty varieties of small shells.

From Majorca we went to Madrid, for sightseeing only. However, when we stopped in a park to rest after walking several miles, we found some Oxychilas draparnaldi Beck in damp earth beneath small boulders. From Madrid, after five weeks, the world travelers left for home. . .

Although we collected about 120 species, I still maintain that we did not do very well. The trip was not for shell collecting. If we had hired a car and started from the northern coast of Portugal, working our way down into the Mediterranean, we'd have a much more complete representation of the littoral molluscan fauna. Too many times we left the seashore frustrated. In the examination of what we brought back there were in-betweens, oddballs, and question marks. Frankly, I would like to go back and do it over again.

In closing, I would like to thank Bill Old for his gracious help in identifying the shells -- some were not easy. Without Bill, half of the collection would be nameless. I would also like to thank Harold Feinberg for identifying the land shells and helping with the bivalves.

When we decided to take the tour I consulted Richard Petit's "Conchological Directory " then wrote to several collectors in Portugal and Spain for information and offered to exchange shells. In the ensuing list I am marking shells that were given to us with an asterisk only if we ourselves did not find those species. Although the exchange shells were, in most cases, better specimens than the ones we found, I am letting the record show that we found them.

I am sure that any errors in the list are my own; I will take full responsibility for them.

LIST OF MOLLUSKS COLLECTED ON TRIP TO SPAIN AND PORTUGAL

May 5 - June 10, 1967, by Anne and Albert Taxson

* Asterisk denotes shells given to us.

LAND SHELLS

- Achatinidae:
  - Ferussacia folliculus Gmelin
  - Rumina decollata Linne
- Clausiliidae:
  - Abida bigorrensis tenusmarginata Deshayes *
  - Abida polygodon Draparnaud *
  - Jaminia quadridens Muller *
- Endodontidae:
  - Pyramidula rupestris Drap. *
- Helicidae & Helicellide:
  - Albea candissima Ferussac *
  - Archelix punctata Muller *
  - Candidula apicina Lamarck
  - Caracolina lenticula Ferussac?
  - Cepea nemoralis Linné
  - Cernuella variabelis Drap.
  - Cochlicella acuta Müller
  - Cochlicella concoidea Drap. *
  - Cochlicella ventrosa Ferrusac*
  - Ebonia vermiculata Müller
  - Helicella caperata Montagu
  - Helicella meridionalis Parreys
  - Helicella arigonis Rossmassler
  - Helicella muricaca Guirao
  - Helix aspersa Müller
  - Iberus alonensis Ferussac *
  - Monacha carthusiana Müller *
  - Otala lactea Müller
  - Pseudotachea splendida Draparnaud
  - Theba pisana Müller
  - Theba pisana maritima Hidalgo
- Pomatiasidae:
  - Leonia mammillaris Lamarck
  - Pomatias elegans Draparnaud
- Pupillidae:
  - Chondrina (Modicella) farinesi Deshayes *
- Zonitidae:
  - Oxychilus draparnaldi Beck

FRESHWATER SHELLS

- Anadonta cygnea Linné *
- Anisus lencostomus Müller
- Lymnea palustris Müller
- Lymnea peregra Müller
- Melanopsis dufouri Bentz

MARINE SHELLS

(Listed according to standard methods of generic classification, the system used in "Muscheln am Meer - (etc.)" by Josette Arrecquos. The following list is in proper order except that I have kept the Siphonaria with the rest of the limpets. --A. Taxson)

UNIVALVES

- Haliotis tuberculata Linné
- Fissurella nubecula Linné
- Fissurella reticulata Linné
- Patella vulgata Linné
- Patella coerulea Linné
- Patella intermedia Jeffreys
- Patella lusitanica ?
- Siphonaria pectinata Linné
- Helcion pellucidus Linné
- Monodonta articulata Lamarck
- Monodonta mutabilis Philippi
- Gibbula divaricata Linné *
- Gibbula richardi Payraudeau *
- Gibbula umbilicalis daCosta
- Gibbula cineraria Linné
- Caliostoma zizyphinum Linné
- Caliostoma langieri ?
- Jujubinus exasperatus Penn
- Jujubinus striatus Linné
- Clanculus corallinus Gmelin
- Clanculus cruciatus Linné
- Clanculus jussieni Payraudeau
- Astrea rugosa Linné
- Tricolia speciosa Mühlfeld
- Phasianella pullus Linné
- Eulima sublata Donovan
- Rissoa ventricosa Demarest
- Rissoa membranacea J. Adams
- Alvania cimex Linné
- Alvania montagui Payraudeau
- Littorina neritoides Linné
- Littorina punctata Gmelin *

MARINE UNIVALVES, continued:

Turritella communis Risso
Cerithium vulgatum Bruguière
Cerithium rupestre Risso
Bittium reticulatum daCosta
Epitonium clathrum Linné
Calyptrea chinensis Linné
Aporrhais pes-pelicani Linné *
Trivia europaea Montagu
Natica hebraea Martyn
Lunatia poliani Scacchi
Payraudautia intricata Donovan
Phalium sulcosa Born *
Cassis saburon Bruguière
Tritonalia nodifer Lamarck
Bursa scobiculata Linné
Ranella gigantea Linné *
Murex trunculus Linné
Murex brandaris Linné *
Pseudomurex meyerdorffi (Calcara?)
Thais lapillus Linné
Thais haemostoma Linné
Muricopsis blainvillei Payraudeau
Ocenebra edwardsi Payraudeau
Ocenebra erinacea Linné
Typhus tetrapteras Born
Nassarius mutabilis Linné *
Nassa reticulatus Linné
Nassarius incrassatus Müller
Nassarius pygmaeus Lamarck
Nassarius corniculum Olivi
Buccinum humphreysianum Godfrey *
Columbella rustica Linné
Pyrene scripta Linné
Cantharus d'orbignyii Payraudeau
Pisania maculosa Lamarck
Mitra ebena Lamarck
Mitra tricolor Gmelin
Marginella miliaria Linné
Cancellaria cancellata Linné *
Cymbium papillatum Schumacher *
Cymbium neptuni ? * *
Conus mediterraneus Linné
Bulla striata Bruguière
Acanthochiton fascicularis Linné
Middendorffia poli Philippi

* * This volute was given to me with the locality stated as Malvaraosa Beach, Valencia, Spain. This may be in error, as Cymbium neptuni is considered to be a West African shell.

BIVALVES

Solenomya togata Poli
Glycymeris violascens Lamarck
Loripes lucinalis Lamarck
Cardium edule Linné
Cardium tuberculatum Linné *
Cardium norvegicum Spengler *
Venus verrucosa Linné
Venus gallina Linné
Venus fasciata daCosta *
Cytherea chione Lamarck
Venerupis decussatus Linné
Venerupis decussatus Linné, form fuscus *
Venerupis aureus Gmelin
Venerupis rhomboides Pennant
Venerupis pullastra Wood
Donax politus Poli
Donax anatinum Lamarck *
Angulus tenuis daCosta
Angulus planatus Linné
Tellina melo Sowerby *
Tellina solidula Sowerby *
Gari depressa Pennant
Psammobia depressa Penn *
Gastrana fragilis Linné
Mactra corallina Linné
Mactra stultorum Linné *
Ensis siliqua Linné *
Barnea candida Linné *
Pinna nobilis Linné *
Mytilus edulis Linné
Pecten maximus Linné *
Chlamys operculus Linné *
Ostrea edulis Linné *
Anomia ephippium Lamarck
Pandora pinna Montagu

BIBLIOGRAPHY:

MOLLUSQUES MARINS du ROUSSILON, par E. Ducquoy, Ph. Dautzenberg and G. Dollfus.
FAUNA und FLORA der ADRIA, by Dr. Rupert Riedl.
MUSCHELN AM MEER - SCHNECKEN und MUSCHELN der NORDSEE, ATLANTIK und MITTELMEERKUSTEN, by Josette Arrecquos.
BRITISH BIVALVE SEASHELLS, by Norman Tebble

NYSC NOTES NUMBER 146 NOVEMBER 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY
NEXT MEETING: SUNDAY, DECEMBER 8th, 1968, at 2:00 P. M.
PROGRAM: THE PRESENT DAY SIGNIFICANCE
OF
ANTIQUARIAN SHELL LITERATURE
by Mart Hulswit (with illustrations)

SHELL-OF-THE-MONTH

SHELLING INTERLUDES AT CORPUS CHRISTI'S AMU MEETING

Our first sight of the Gulf of Mexico was when we were taken to Padre Island for a long-to-be-remembered beach party and fish fry. It was late afternoon, the tide fairly well out, and the AMU members were, in a matter of seconds, scattered along the beach -- at and in the water. Living *Janthina* were being cast ashore; quite a few were collected, along with their floats, to be put into containers of sea water and admired and examined. Several *Terebra hastula maryleeae* were found as they struggled in the wet sand, stranded by the ebb of a wave. *Donax* were there, too. On the beach there were interesting fragments of several species, including *Phalium granulatum*, the Scotch Bonnet -- a species the writer has yet to see alive. There was really not much shelling done in the time before dinner -- but what was done was very interesting. Then as twilight deepened the urge to hunt shells was diminished.

The next time we scattered to look for shells was at the Welder Wildlife Preserve. A few dead species were found on the ground under the hedges by the main building, but the more serious shelling was done in the fields and near the drainage ditches of the ranch. The writer (being a lazy sheller) did not join in the hunt for land and fresh water species and knows not what was collected. Instead, we looked at jack rabbits, the fabulous road runners (our American cuckoo) and wild turkeys.

On the all day field trip there were stops in bay areas where several species were collected from spoil banks -- *Chione*, *Dosinia*, *Cerithium*, little *Tagelus*, etc. etc. We looked for Chitons in the shallows of the waterway, but none were found under any of the uncounted pebbles we turned.

Our route took us to Mustang Island by ferry; we proceeded to the beach at Port Aransas and shelled near the jetty. (Both of the Gulf beaches we visited -- Mustang Island at Port Aransas and the northern part of Padre Island -- are wide, flat and hard. The buses drove right along the beaches and parked on the sand -- on Padre near the foothills of a great line of dunes. We understand that about twenty miles south of Corpus Christi the beach changes and is too soft for vehicles.)

Our most vivid first impression of the beach at Port Aransas was the sight of great coils of purple and yellow sea whip, *Leptogorgia*, cast

ashore. Much of the sea whip, especially in the bottom layers of the coils, was still damp; stripping it between the fingers, several of the shellers found Neosimnia acicularis which was present in both the lavender and yellow forms, some still alive.

Young Thais haemastoma were plentiful, as was Littorina, on the rocks of the jetty. On the beach there were many empty shells of Sinum perspectivum along with samples of more common species. Several egg strings of Busycon spiratum were swirling in the light surf. On the channel side of the jetty a live Phalium granulatum was found. When last heard of it was being cared for in a portable aquarium. Another sheller found a horned toad -- and left off shelling to hunt for meal bugs for the toad.

One by one and two by two we assembled at the bus for return to the hotel. While we waited for those who were getting in some last minute shelling we appreciated the opportunity to cool off, as our hosts had stocked the bus with cold drinks and Hershey bars in chests of crushed ice. The last two aboard, urged on by the horn, carried chunks of muddy material (marl? peat?) out of which they dug live Date Mussels, Lithophaga, which we have tentatively identified as bisulcata.

It had been a successful day, with most of the visitors returning with at least one species they had never before found.

All the shelling interludes were not in the field: The Texas Clubs had assembled a quantity of Texas shells to present to us -- land, fresh water, and marine species, and all most welcome additions to a collection.

Dorothy Raeihle

PLASTIC HEAT EXCHANGER ENDS POLLUTION PROBLEM; BABY OYSTERS GROW AGAIN

A serious water contamination problem at an experimental oyster hatchery has been solved by use of a Du Pont Heat Exchanger with tubes of "Teflon".

The Canadian government established the hatchery at Ellerslie, Prince Edward Island, four years ago to develop reliable techniques of rearing seed oysters on a commercial scale and to select stocks of oysters with desirable characteristics.

Researchers at Ellerslie became aware of a serious problem when larvae and small oysters, which had been developing normally, suddenly stopped growing. By a process of elimination, they discovered the problem originated in the heat exchanger: contamination was caused by metallic ions being released into the sea water by electrolytic corrosion of the exchanger's metal tubes. Installation of a unit with inert tubes of "Teflon" solved the problem.

Spawning of oysters is triggered by raising the sea water temperature. Heating demands vary with temperature of the ocean water. At one period of operation sea water, flowing through the tubes of "Teflon" at 6.6 U.S. gal./min. was being heated from 38° to 68° Fahrenheit. Heating was by water at a temperature of 170° F. The overall heat transfer coefficient achieved under the above operating conditions was 23 BTU/hr.-ft.^{2}-$^{\circ}$F.

DU PONT OF CANADA LIMITED
Public Relations Department

MOLLUSKS AND LITERATURE

by Morris K. Jacobson

Poets, novelists, essayists, and philosophers have made frequent references to mollusks and their shells to construct similes and metaphors, to point a moral, to reflect the moods of nature. The present abbreviated investigation of the role which these creatures have played in literature is concerned mainly with the question of exactly what it is in mollusks that made belle lettrists and others turn to them in their works.

First, of course, is the beauty of the molluscan shell. Thomas Hardy, in describing a beautiful young lady, writes of the "white, shell-like sinuosities of her little ear" [Far from the Madding Crowd]. Cervantes celebrates the beauty shells lend to a fairy fountain:

> There he spies a fountain made of mottled jasper and smooth marble; here another, roughly fashioned, where tiny mussel shells, mingled with the twisted yellow and white houses of snails, lying in disordered order among pieces of glittering crystal. [Don Qijote Pt. 1, ch. 50]

The contemporary poet Alan Dugan displays brilliantly effective insights into the beauty of shells: "The first point of the shell was moored to zero." Or:

> The snail retreats to nothing
> where the shell is born
> pearl of its phlegm and rock.

Who else but a master poet could see that:

> A turbine in the conch
> is whirled so fast
> that it stands still
> humming with cold light. [Poems, 1961]

The same poet is indignant at what sometimes happens to the beauty of the shells:

> The animal inside
> is out of luck in art.
> Tourists gouge him out
> of water's Gabriel
> and gild the whirling horn
> to make a lamp at home.

And was it only the beauty of Cypraea, or some other urge that gave rise to such a scene as was witnessed by Richard Francis Burton, the famous translater of the "Arabian Nights", in the African kingdom of Dahomey:

> On the third day the king distributed cowries to his people who fought savagely for them. Eyes were sometimes gouged out and noses torn off in the scuffle....Burton saw a hand that had been bitten through by the sharp teeth of an enthusiast. The king invited Burton and his party to join the sport and they consented, scrambling like schoolboys for shells. [Farwell, Richard Burton, p. 234]

Robert Herrick, 17th century English poet, makes a pretty figure of speech with snails:

> Her pretty feet, like snails did creep
> A little out, and then,
> As if they played at bo-peep
> Did soon draw in again.

II

There is an old, imperishable notion current that the sound of the sea is echoed in the shell. The poet James Stephens, among countless others, gives a classic version of this idea:

And then I pressed the shell close to my ear
And listened well,
And straightway, like a bell
Came low and clear
The slow, sad murmur of far distant seas.

But this thought has become so trite -- in addition to being quite unscientific -- that witty cartoonists poke fun at it. A cartoonist named Stevenson shows a startled man in bathing suit on a beach with a shell held to his ear. The caption reads: "I'm sorry. The shell you have picked up is not a working seashell. I'm sorry. The shell.." Another pictures a similar scene with the caption: "Put me down. Put me down."

III

So much for the beauty and music of shells. Poets and others also see the shell as a symbol of shelter, protection, security. Hence the NEW YORK TIMES reports a girl as saying, after her boy friend had married someone else: "I cracked up. I went into a shell." (June 2, 1968) To crawl into one's shell is a fixed part of our language. A startling mixture of metaphors caused a patriotic Englishman to cry: "No one is going to make the British lion pull in his horns or draw into his shell!" It is a queer confusion of thought that identifies the soft "horns" or tentacles of a snail with the sharp, sturdy horns of a bull. In this case it is likely that the fervid author of these words was not aware that his reference was to a snail. Hardy in the "Dynasts" sees England's protected island home in molluscan terms:

Her rock rimmed situation walls her off
Like a slim selfish mollusk in its shell.

The refusal of small minds to accept new ideas is bivalvian in nature to one writer: "They close their minds like so many startled clams snapping shut their shells." [L. Sprage de Camp in "The Great Monkey Trial]. The notion of the shell as shelter comes from the idea that the shell is actually the home of the snail that "inhabits" it. Terms like this were used occasionally by professional malacologists who, one likes to think, should have been more careful. Walter E. Collinge, the Editor of "The Conchologist", wrote as follows in 1891:

> Long ago we were told by Müller that shells had amused us sufficiently, their beauty of colour and form had called forth enough of mere wonder, and that it was high time we left such amusement to children and became men and studied the living inmates, their structure and manners.

And Anne Lindbergh in her charming book, "Gift from the Sea", calls upon "middle-aged argonauts" to "look forward to the freedom of the nautilus who has left its shell for the open sea". Although it is a fact that the snail can no more leave its shell and live than we can escape from our bones and continue functioning, the idea that the snail lives in its home, the shell, is as strongly rooted in common thought and in the language as is the roar of the sea in the conch to

which we have referred above. John Donne expresses this thought succinctly: "The snail, which everywhere doth roam / Carrying his own house still, still is at home...." William Shakespeare in "King Lear" makes dramatic use of this widespread idea: "but I can tell you why a snail has a house. Why, to put his head in; not to give it away to his daughters, and leave his horns without a case." [Act 1, sc. 5] But Shakespeare also sees a common fate in the "inhabitant" of the home:

ROSALIND: I had as lief be wooed of a snail.
ORLANDO: Of a snail?
Ros.: Ay, of a snail; for though he comes slowly, he carries his house on his head -- a better jointure I think, than you can make a woman; besides he brings his destiny with him.
Orl.: What's that?
Ros.: Why, horns. [As You Like It, Act 4, sc. 1]

This naughty line was usually bowdlerized in less sophisticated times. Jane Newell in LOOK Magazine envies the shelter of the patellacean:

"The lily-livered limpet lives his life
Aloof, serene, and safe from social strife."

The idea that too great security leads inevitably to timidity is also seen symbolically in the world of mollusks. Henry Miller writes in Sexus: "A snail is shocked when a drop of rain hits its shell." And Shakespeare lends the thought greater poetic grandeur:

The snail, whose tender horns being hit
Shrinks backward in his shelly case with pain,
And there, all smothered up in shade doth sit
Long after fearing to creep forth again....

[Venus and Adonis]. But sometimes the security proves to be illusory:

The snail draws in at the terrible tread,
But in vain; he is crushed by
the felloe rim. [Hardy, "The Dynasts"]

IV

Another common literary figure in which mollusks are used is to convey the idea of slowness, stubborness, lethargy. Exasperated commuters call it the Long Island Snail Road. The language has made an eponym of the creature and Shakespeare says no more than "snail paced" [Richard III] and "snail slow" [Merchant of Venice] to express this idea. In an outburst of fury he has a character make double use of gastropods to strengthen his exasperation: "Dromeo, thou drone, thou snail, thou slug, thou sot." [Comedy of Errors]. Much better known are his famous lines on the life of man:

The whining schoolboy with his satchel
And shining morning face, creeping like a snail
Unwillingly to school. [As You Like It]

The great 19th century Spanish novelist, Benito Pérez Galdós, contrasts the swift flight of the bird toward grander things to the slow, plodding of the earth-bound clams: "El pájaro no debe hace vida de ostra." ("A bird should not lead the life of an oyster.") [Angel Guerra] Red Skelton slams the thought home with a marvelous hyperbole: "Sitting in a car on the (Los Angeles) Freeway watching the snails whiz by."

MOUNDS AND MIDDENS

by Virginia Lee

Although southern Florida may have been inhabited by Indians for many thousands of years, there is proof of only the last three thousand years or so. Where the early Indians came from or what they called themselves is not known. But we do know they were here. And the meager but clear proof is shells.

When the Spaniards arrived in Florida about 1500, the large Colusa tribe inhabited the Everglades and the Keys, while the smaller Tekesta tribe lived along the lower east coast. Thanks to the depredations of the "civilized whites", no members of these tribes survive. But the Indians left remnants of their cultures in great mounds of shells scattered over Florida. The mounds are remains of oyster feasts and kitchen middens, but there were also burial sites, lookouts, and religious grounds. In these massive heaps are found many kinds of shells which were used by the Indians other than for food.

For their work-a-day world, spoons were made of bivalve halves and ladles from ground down whelks. Most implements were made of shells with wooden handles attached. Large clam shells were used as scrapers and for digging tools and hoes. While some were held in the hand for use, others were hafted by clamping curved sticks over the umbones. Picks, hammers, adzes and gouges were made of heavy whelk shells. The whorl on the ventral side was often bashed in. The shell's lip was notched and a hole made opposite in the dorsum to accommodate a hardwood stick handle driven into the holes, wedged against the columella and secured by friction. Occasional shells have been found with additional holes in the spire, indicating that the handle was sometimes fastened with fiber or rawhide.

For woodworking, curved pieces of buttonwood, mangrove and deer horn were fitted with bits of shell. Rasps were made of coral or rolled up pieces of shark skin. As anyone who has been rasped knows, both are effective.

Anchors were made of large horse conchs with holes punched so that when tied tightly together the spires stood out like the points of a star. Large conch shells were used as bailers. Fishnets, made of the tough fibers of Spanish bayonet, were weighted with punched shells tied together in bunches. The nets were floated by sticks of gumbo limbo tied to the tops. Fish hooks of forked sticks or carved bone, floats of gumbo limbo and sinkers of shells were used for hand fishing. Several ovals of shiny Pinna shells perforated at one end and found with fishing gear have led one archeologist to believe that they might be the forerunners of today's spoon lures.

Weapons of war were devised from large left-handed whelks. A hole was punched through the whorl, opposite the columella. The ends of a hardwood handle extending through the hole and tied against the columella of the shell completed an efficient "conch" for any intruder's head.

Although they didn't use clothing, ornaments to wear were made of shells, wood, or bone. Shell beads, pendants and cord-knobs have been found. Crude wooden earrings for pierced ears have also been

found, sometimes decorated with little white shells.

Shell trumphets and rattles were used for ceremonial occasions. The trumphets were probably also used for signaling as they have been in other cultures.

The use of shells for food and food preparation, as building material for the mounds, as tools for agriculture and fishing, for fashioning dugouts, and for ceremonies and adornment, shows their great dependence on the molluscs in their lives. I wonder if any of the Colusas or Tekesta ever saved a shell because it was beautiful or "different". Probably not. Only when "livin is easy" do people have time to appreciate mountains and flowers and colored rocks and shells

Reprinted from:
SEAFARI, Vol.10, No.8, Aug., 1968; the publication of the Palm Beach County Shell Club.

Johnsonia: Vol.I. Long out of print, this useful monograph series on Western Atlantic Conidae, Muricidae, Strombidae, Cariidae, etc., is now once again available. Reproduced in its original size, original paper, and beautifully soft-bound, it may be obtained for only $15.00 (postage and packing free) from W. and R. McCauley, 1919 Sandy Hill Road, Apt. C-12, Norristown Pa. 19401. If you also wish vols. 2,3, and 4, write: Dr. W.J. Clench, Museum of Comparative Zoology, Cambridge, Mass. 02138.

INDO-PACIFIC MOLLUSCA Vol.2, no.9 Introduction and Cassidae, 202 pp. (August 1968). The long-awaited Cassid issue of Indo-Pacific Mollusca is now available. It covers the Recent and fossil species of this interesting family. It is illustrated with 187 plates, several of which are in color. $14.14 loose-leaf. Permanent binder no.2, $4.50. Order from: Department of Mollusks, Academy of Natural Sciences, 19th and the Parkway, Philadelphia, Pa. 19013.

She Sells Seashells by Veronica Parker Johns. This is a rollicking account of what it is like to own a shell shop. It is packed with pearls, such as, "Anyone who can't wait until 11 A.M. to buy shells does not deserve them". The book contains a good deal of useful and helpful information for the novice, as well as providing a spell-binding narrative for others. After all, "Anyone kookie enough to own a shell shop can't be all bad"! 198 pp. Funk and Wagnalls. $5.95.

THE SHELL-FIVE HUNDRED MILLION YEARS OF INSPIRED DESIGN. by Hugh and Marguerite Stix and R. Tucker Abbott. Photos by H. Landshoff. Approximately 200 pp, 203 illustrations including 82 hand-tipped plates in full color. One word review: Gorgeous. This is an art book rather than a study, with identifications and brief commentaries by R.T. Abbott. Size about 12" high by 14" wide. A good Christmas item. Published by Harry N. Abrams, Inc. $25.00. Shell Club members may obtain the book directly from R.T. Abbott, Academy of Natural Sciences, for $20.00.

NYSC NOTES NUMBER 147 DECEMBER 1968

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JANUARY 12th, 1969, at 2:00 P. M.

PROGRAM: SEXUAL DIMORPHISM IN FRESHWATER MUSSELS
by Dr. J. P. E. Morrison, U. S. National Museum
SCANDALS IN CONCHOLOGY by M. K. Jacobson
CHRISTMAS GIFT by W. E. Old

1969 SHELL SHOWS

Florida:	Fort Myers . . .	February 11 - 15	*
	Broward County . .	February 13 - 16	* (See page 7)
	Palm Beach County .	February 19 - 23	
	Naples	February 21 - 23	
Texas:	South Padre Island Shell Fair . .	February 23	
Florida:	St. Petersburg . .	February 26 - March 2	
	S. W. Florida . .	March 6 - 8	
	Sanibel Island . .	March 6 - 9	
	Sarasota . . .	March 6 - 9	
	Jacksonville . .	April 24 - 27	

(From: Jacksonville SHELL-O-GRAM
& TEXAS CONCHOLOGIST.)

AN AAAS SYMPOSIUM INVOLVING MOLLUSKS

According to SCIENCE (15 November, p. 16-17), an entire symposium of the Annual Meeting of the American Association for the Advancement of Science to be held at Dallas, Texas, will be devoted to a topic of interest to malacologists. This is the symposium, to be given 28-30 December 1968, entitled: "Penetration of $CaCO_3$ Substrates by Lower Plants and Invertebrates", arranged by Dr. Melbourne R. Carriker of the Woods Hole Laboratory. The papers to be given include such topics as the following: The Comparative Ultrastructure and Organization of the Prismatic Region of Three Bivalves, and its Possible Relation to the Chemical Mechanism of Boring; Organic Composition of some Molluscan Shell Structures, Including Periostracum; The Internal Shell Microstructure of Bivalved (sic) Mollusks; The Fossil Record of Shell Boring by Snails; Observations on the Borers in the Shell of the Bivalve Placopecten magellanicus; The Penetration Mechanism of the Boring Sponge Cliona, (this is the organism whose handiwork is seen in the winding labyrinthine passages we find in so many thick shells like Mercenaria and Ostrea in the New York City area); Shell Burrowing Barnacles; Drilling and Feeding of Gastropods by Octopus; Comparative Study of Bivalves which Bore Mainly by Mechanical Means; Chemical Destruction of Limestone by Three Mytilid Clams; Functional Morphology of Penitella conradi (a Zirphaea-like piddock); Beach Rock Destruction by Marine Gastropods at Boca Raton, Florida; A Boring Nudibranch from the Indo-West-Pacific (and we thought that only Teredo and Lithophaga can bore!); The Proboscis and Proboscis Gland of the Cymatiid Mesogastropod Argobuccinum argus; three papers dealing with the structure of the boring organ of Urosalpinx and the holes

it bores; Carbonic Anhydrase and the Shell Boring Mechanism of the Gastropod Purpura (Thais) lapillus. Other papers deal with the boring activities of algae, bryozoans etc., of lesser interest to malacologists.

One paper that deserves mention is by two authors who named, but did not figure or describe, a new genus and new species of a boring bivalve commensal in reef corals. The printing of this name in SCIENCE before publication of the description constitutes the creation of a nomen nudum, which is a nuisance because it lengthens needlessly the synonymy of the new species.

mkj

THE FRED TOBLEMAN COLLECTION

We are happy to report that the shell collection of our late member, Fred Tobleman, is now housed in a small museum in Elberon, New Jersey, close by Monmouth College Campus. It is a private museum, owned by Mr. Edmund Wisner and Mr. Victor Wisner, but may be visited by appointment. The address is 60 Norwood Road, Elberon, New Jersey, and the telephone (201) 229-0746.

Mrs. Tobleman has visited the museum and tells us that the collection is housed in the original cabinets that Fred made, and that the new curators have made a sign with tiny shells arranged to spell out "The Fred Tobleman Shell Collection".

We are glad that this collection so painstakingly gathered and studied is so situated as to attract interest and give information, especially to a new generation of students.

dr

A LETTER FROM CALIFORNIA

October 29, 1968

Hello, Everyone --

I have been to two local shell club meetings hereabouts -- and I say local advisedly, as the one in Long Beach is 30 miles from Laguna Beach, and the meeting of the Conchological Club of Southern California at the Los Angeles Museum is about 60 miles away. However, it seems that Californians are so bound to the automobile that they take these distances in their normal stride. At the meeting of the Long Beach Shell Club the main speaker gave a talk on a collecting trip along the coast of Washington and Oregon. Various displays of shells were prepared by the members and altogether the meeting was not very different from one of the New York Shell Club. At the meeting in Los Angeles the principle speaker was a specialist in nudibranchs and this talk was illustrated with many fascinating color slides of mollusks and their egg cases. At both meetings some socializing takes place at the close of the formal talks over coffee and cake, for which some provisions evidently exist or are permitted.

This past Thursday, October 24th, I went to San Diego, 65 miles to the south, to attend a meeting of the San Diego Shell Club. The speaker was Dr. Rudolph Stohler, editor of THE VELIGER, who gave a general report on his extensive studies of the local Olivella biplicata. A number of specimens of this species were collected for him over a period of ten years, during which time he marked yearly growth

series to determine their age span and growth rate. The San Diego Club members cooperated by collecting specimens at stated intervals within a prescribed area and endeavoring to recover those specimens that had been previously marked. The marking was done by Dr. Stohler on the shell of the living animal with a dental drill so as not to hurt the animal. The specimens were then released for attempts at recovery, remarking and releasing year by year. The final results of this study are to be published by Dr. Stohler in a forthcoming issue of THE VELIGER.

As for the social angle, the San Diego Club meets for dinner before the meeting at a local smorgasbord restaurant. The whole group, like the other shell clubs, is a very congenial one. One very interesting sidelight of any meeting in California is the lack of a weather threat. A few of the New York Shell Club meetings were, I remember, poorly attended either because of ice and snow or other unforeseeable weather factors. San Diego is a Navy town and, as one might expect, many of the people you meet either were or still are in the Navy.

I am still much involved in working with the Muricidae, and at this time I have a number of species from the Panamic fauna which are providing me with some intriguing problems.

Not much more to report so I will close with a "Hi!" to all -- need I say that we miss everyone and the activities we shared in New York ...

Anthony D'Attilio

FROM HAWAII:

(December 8th, 1968)...We have a view of the ocean, Diamond Head, Honolulu and what have you. The weather was hot (75° - 80°) when we arrived in late October; now it is averaging 65° - 82° which is near perfect. Shelling has been very good on the rough beaches where the strong surf piles up rubble in one to two feet of water. By dredging this out (back-breaking work!) we found yesterday 3 *Cypraea tessellata* (fresh dead), 1 *Murex pele*, 3 *Cypraea granulata*, 1 *Cypraea rashleighana* (dead) but the rarest in Hawaii, and assorted small cones, terebras, mitras, strombus.........

Neal and Eva Seamon.

ART EXHIBIT

Included in the special exhibits at the Teaneck Campus Library, Fairleigh Dickinson College, is one of shell flowers fashioned by NYSC member Marian Moss (Mrs. Murray Moskowitz). From Teaneck her exhibit will be sent to the Rutherford Campus. (Dates are unknown; inquire of Public Relations Department.)

OPPORTUNITY:

Need a shell cabinet? This one is 6'6" high, 4' wide, 22" deep. It has 60 drawers, 19" x 19½", and dustproof doors. It is for permanent installation, i. e. dismantled for moving, reassembled at its future station. Now at Rockaway Beach.

Those interested may telephone M. K. Jacobson after 6:00 P. M., Area code 212: 634-5290, for details and price.

(Continued from)
(NOTES 146, pp.3-5)

MOLLUSKS AND LITERATURE

by Morris K. Jacobson

IV cont'd:

A cartoonist saw humor in the slow, wearisome walk of the snail. He drew one worried looking snail saying to another: "It was one of those dreams where something was chasing me and I could hardly move." (Martin in Christian Science Monitor). And finally George Eliot, one of the greatest of England's 19th century novelists, sees a game in which snails can compete: "If I should want a game, I'll rather bet/ On racing snails, two large, slow, lingering snails."

V

But if snails are slow and stolid, they also epitomize various kinds of unpleasantness. They are cold, dank, slimy, disgustingly soft, gooey. Robert Southey shows his dislike for little boys in the famous lines: Snips and snails and puppy dog tails
And such are little boys made of.

And Robert Lowell, the contemporary author of "For the Union Dead", paints a distressingly unpleasant picture by using snails:

legs spindly, hands that leave
a clammy snail's train on your soggy sleeve.

Henry Miller, who uses many molluscan similes, enlivens the usual figure of a gooey clam: "Kronski looked at me with a wan dead smile, the look of a sick clam expiring in the moonlight." (Sexus) Jakov Lind, the modern German writer, says simply: "He looked at Halftan's ear that hung down like a mollusc under the brim of his hat." One poet classifies them without any literary figures, just a straight statement of fact: "Amphibian bird and mammal cannot shine
by own light as can some *uglies*
of the undersoil and brine; chill
toadstool, clam, and worm."

(Mary Swenson, New York Times)
(Italics by MKJ)

Parenthetically it can be said that Miss Swenson is referring to the cold light that is given out by *Petricola* and other bivalves.

Anthony Trollope knows how nice girls react: "The bench was narrow, hard, and broken, and there were some snails which discomposed her." (The Eustace Diamonds) The assumed formlessness of molluscan anatomy makes a graphic figure: "Eisenhower pulped the language; he made a mollusk of it, spineless and faceless." (S. N. Behrman in the Sunday Times) Emily Bronte knows snails are cold: "I shrunk icily into myself, like a snail." (Wuthering Heights) and James Joyce in his "Ulysses" writes: "a stain of ink lay, dateshaped, recent and damp as a snail's bed." Shakespeare was not always offended by the unpleasant softness of snails:

Love's feeling is more soft and sensitive
Than are the horns of cockled snails.

Incidently, though by "cockle" today we refer to the bivalve *Cardium*, the older writers were more correct when they had the word refer only to gastropods. *Cockle* comes from the Greek *Kochlias* which means twisted and thus more readily refers to gastropod shells than bivalves

Unamumo, the great Spanish philosopher, draws on the physiology of snails to condemn the contemporary decline in morality:

> It is said that each time a sinful woman walks through a street and a more or less lecherous man casts upon her a concupiscent look, there remains in the atmosphere an invisible thread, like the slimy trail of a snail, and these threads cross and crisscross in such a manner that they finally form a net, a web in which the human soul suffocates, fluttering its poor wings in vain.

It might be noted that the figure is extreme and rankly unfair to the inoffensive snail.

VI

The collecting of shells as a hobby has not been overlooked by writers. Laurence Stern has his Tristram Shandy say: "Now if you come to that, Sir, have not the wisest of men in all ages, not excepting Solomon himself: -- have they not had their Hobby-Horses -- their running horses -- their coins and their cockle shells?" (Ch. 7) Robert Louis Stevenson makes a ringing statement for us: "It is perhaps a more fortunate destiny to have a taste for collecting shells than to be born a millionaire." George Eliot has this advice to give to a man who has just suffered a heart attack from over-work: "Why, you might take to some light study: conchology, now: I always think that must be a light study." (Middlemarch, Ch. 30) It might be noted that Mr. Casaubon, to whom this advice was proffered, failed to take it and was dead a few chapters later. Charles Darwin didn't think much of our hobby: "He (MacGillivray) gave me some rare shells, for I at that time collected marine mollusca, but with no great zeal." (Autobiography, Ch. 15) James Joyce seems to have known something about shell collections: "Stephen's embarrassed hands moved over the shells heaped in the cold stone mortar: whelks and money cowries and leopard shells: and this, whorled as an emir's turban, and this, the scallop of Saint James. An old pilgrim's hoard, dead treasure, hollow shells." (Ulysses) Anne Lindbergh has a few harsh words to say about us: "The collector walks with blinders on; he sees nothing but the prize. In fact, the acquisitive instinct is incompatible with true appreciation of beauty." (Gift from the Sea) I suspect some of us would like to argue the last sentence. But the same writer does have cautionary words on the collector who overcollects everything in sight: "One cannot collect all the beautiful shells on the beach. One can collect only a few. One moon shell is more impressive than three... One double sunrise (=Tellina) is an event; six are a succession, like a week of schooldays." (ibid) But the noblest defense of our aberration was uttered by the classical Spanish poet Gongora:

Busque muy en hora buena
el mercader nuevos soles;
yo conchas y caracoles
entre la menuda arena:
¡ Y RIASE LA GENTE !

(Let the merchant if he pleases
look around for golden dollars
I for shells and sturdy conches
will be seeking in the beach sand:
AND LET THE PEOPLE LAUGH!)

VII

Sometimes I come across peculiar notions of molluscan biology and other matters conchological. Captain Craig in one of his television shows in "The Kingdom of the Seas" assured us that (I quote from mem-

ory) "Fiji is the home of the Golden Cowry of which only six specimens are known and which sell for $10,000 a piece." (What else can you expect from solid gold!) The Talmud tells us flatly: "God created the snail as a cure for the scab." (Shebuoth 77b), and the Psalms sing: "As the snail melteth away, let every one of them pass away." ("Dryeth away" would have been more accurate.) Leviticus lists as "unclean....the creeping things that creep upon the earth:.. and the lizard, and the snail, and the mole," thereby putting the phylum Mollusca between the Reptilia and the Mammalia. Cowper, the English poet, seems a little confused as to exactly what a snail is anyway:

> I would not enter on my list of friends...the man
> Who needlessly sets foot upon a worm.
> An inadvertant step may crush the snail
> That crawls at evening in the public path;
> But he that has humanity, forewarned,
> Will tread aside and let the *reptile* live.

(Italics added)

Higden in his Polychronican, an early bestiary, has the following to say about oysters:

> As for instance, oysters, which, occupying as it were the lowest position in the class of animals, scarcely rise above the life of plants, because they cling to the earth without motion and possess the sense of touch alone.

Which just misses assigning oysters the position of intermediary between the plant and animal kingdoms. Eugene Ionesco, the modern playwright, says flatly, "The turtle and the snail are the same animal" while on the Dick van Dyke show on TV we hear someone say, "Snail, snake...what's the difference?" Mark Twain in his later years became uncomfortably misanthropic and with a little confusion in his mind regarding the true nature of evolution, wrote with bitter eloquence thus of us humans:

> All that is original in us...can be covered up and hidden by the point of a cambric needle, all the rest being atoms contributed by, and inherited from, a procession of ancestors that stretches back a billion years to the Adam-clam or grasshopper or monkey from whom our race has been so tediously and ostentatiously and unprofitably developed.

(Connecticut Yankee, p. 217)

The poet John Milton, as do so many people today, threw various marine invertebrates into the large class universely designated as shellfish:

> Forthwith the sounds and seas, each creek and bay
> with fry innumerable swarm, and shoals of fish....
> Part single or with mate
> Graze the sea-weed, their pasture, and through groves
> Of coral stray...
> Or in their *pearly shells* at ease attend
> Moist nourishment, or under rocks
> Their food in *jointed armor* watch. (Paradise Lost, Book 7)

In some way unknown to practising malacologists the Smothers Brothers on TV discovered that "Clams are very fussy eaters."

(To be concluded)

STRANDLINE SHELLING IN THE EASTERN MEDITERRANEAN

by Larch S. Garrad

Because of the limited tidal range Greek beaches seldom have an interesting tideline, even after storms. On the mainland Tolon is one of the few with any number of shells. Its wide sandy beach is easily reached by local 'bus from Nauplia, in the Argolid, and it now has its own hotel. The sandy, surf-swept beaches east of Iraklion in Crete sometimes yield nice specimens and since Astarte and Venus species are widely eaten as 'fast' food they may well occur in accessible places although I never managed to track them down.

Cyprus is completely different with few entirely unproductive shores. Salamis has a magnificent strandline with piled drifts of Conus mediterraneus, Columbella rustica and Dentalium, occasional Haliotis, Cypraea lurida and paired 'wings' of palest pink Solecurtus strigillatus. Famagusta has fairly good live shelling among the shore rocks and in shallow water over sand, beyond the old town. Minute species are to be found on the central beach where they are trapped among the higher rocks after the winter storms and the muddy 'lagoon' has Cerithium sp. and Cyclope neritea. Judging by a fine collection, at present preserved in the new Folk Museum, Kyrenia also produces a wide range of species and skin-diving would be worthwhile off-shore. The coastal rocks have a few splash-zone species and deeper water types may be found with hermit crabs 'in residence'.

Turkey's immense coastline has many almost unvisited sandy beaches and even commercial ports like Cannakle are interesting if only for the presence of the familiar mussel, Mytilus edulis. From species shown to me by a local craftworker I discovered that Edremit-north of Izmir = Smyrna - has superb off-shore shelling, again in shallow water over sand. Murex sp., Chlamys varius, Natica millepuncta and Cypraea lurida were among his haul. It is likely that other beaches in this area, easily reached by 'bus from Istanbul and provided with 'mocamps' for travelling campers by BP - to enable the English to beat the £50 limit - are equally productive.

I hope that despite the restrictions and political upheavals other members will pay a visit to these classic collecting grounds. Before I conclude this brief note I would like to add that with a little encouragement the Cyprus Museum may expand its shell collection and convert it into a permanent national asset.

Reprinted from:
THE CONCHOLOGISTS' NEWSLETTER, No. 25, June 1968, of
THE CONCHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

Re: SHELL SHOW DATES

Those of our readers planning to visit the shell shows should perhaps check locally to verify the exact dates, as a later communication was quoted to give dates of two or three of the shows in slight variance from those listed.

NYSC NOTES NUMBER 148 JANUARY 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

* * * * * * * * * *

TWENTIETH ANNIVERSARY JANUARY 1969

* * * * * * * * * *

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Recording Sec'y
ANGELA SAVINO

Historian
NICK KATSARAS

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY *

NEXT MEETING: SUNDAY, FEBRUARY 9th, 1969, at 2:00 P. M.

PROGRAM: MARINE MOLLUSKS OF THE MARQUESAS ISLANDS (illus.)
by Dr. Harald A. Rehder, U. S. National Museum

NEW YORK HARBOR (illustrated)
by Mathilde P. Weingartner, S. I. I. A. S.

* A social is being planned for our April 13th meeting, to be held in other quarters. Watch for details in the next NOTES.

As January, 1969 marks the twentieth anniversary of the founding of our club, we feel it will be of interest to our many readers to read of how we started. The following report is reprinted from NEW YORK SHELL CLUB NOTES, No. 28, January 1957:

THE FORMATION OF THE NEW YORK SHELL CLUB

by Dr. Walter H. Jacobs

In this, the ninth year of our existence, it might be appropriate that a short history of our organization be read so that posterity will ever be acquainted with the formation of the New York Shell Club.

In the fall of 1948, after a summer spent on and about the beaches of Connecticut, the various common shells became a challenge to my modest knowledge of natural history. Books at the library did not help much with the problems of identification. The next call was to the American Museum. I was advised that no group or club was active in the city that was interested in shells, but information was given concerning the American Malacological Union. We were told to contact Mrs. Imogene Robertson, the secretary, at Buffalo. Mrs. R. answered that she too knew of no organization interested in Mollusca, in or about N. Y., but she did advise that I get in touch with a local shell enthusiast, Mr. Morris K. Jacobson of Rockaway Park. We called Mr. J., our interest in shells was explained and an appointment was made to meet one evening in Grand Central, near the information booth, each of us to carry an identifying object, of course a shell!

We met Mr. J., and in the local Childs restaurant on 42 Street, we discussed shells, the need for a local shell club and how to go about the formation of such a group. It was decided to try to obtain a meeting place at the American Museum and to post a notice there, also to post notices at the local college science departments and any other place that might contact shell people! The organization meeting was called for Sunday, Jan. 30, 1949, in room 129 at the AMNH, 3 P.M. Nine persons answered the call; present were: Mr. and Mrs. Entwisle, Mr. George Hubbell, Miss Joan Gordon, Mr. Morris Jacobson, Mr. Anthony D'Attilio, Mr. Fred Tobleman, Mr. George Jacobs, Dr. Walter Jacobs. Here are some of the minutes of that meeting: "Mr. Jacobson was appointed acting President and Dr. Jacobs acting Sec'y. It was agreed that the name of the organization should be the N. Y. Shell Club. It was further agreed that a simple constitution be

drawn up with provisions to include field trips for revising the list of the N. Y. Mollusca. Membership in the Club is open to all interested in the subject. The program for the next meeting was to include a talk on Radulae by Mr. Tobleman and 'good collecting localities in N. Y.' by Mr. Jacobson. Mr. Tobleman brought an interesting Elliptio to show the group and Mr. D'Attilio showed an interesting shell from Japan. The meeting was adjourned at 4:30."

The second organization meeting of the New York Shell Club was held in room 129 of the American Museum on Sunday, Feb. 27, 1949. Present were: Mr. Morris K. Jacobson, Mr. Fred Tobleman, Mr. George Jacobs, Dr. Walter Jacobs, Mr. Mole, Mr. and Mrs. George Wilmott, Mr. and Mrs. A. D'Attilio, Mr. and Mrs. Entwisle, Mr. and Mrs. LeMond, Miss Henrietta Schroeder, Mr. George Marks and Mr. Gundlach. These members and the group that were present at the first meeting are recognized as charter members of the Club. The two acting officers were elected for the next year, with Mr. D'Attilio as the treasurer. Here is the financial report made at that meeting: Dues collected $13, disbursements for post cards $1. And so the New York Shell Club was started.

ADELAIDE DAVIS

The unfortunate death of Adelaide Davis on January 4th has brought to a close our association with a delightful and charming person. Our deepest sympathies are with her husband, Orville Davis, and their family.

ARTHUR A. UNGER

The sudden death of Arthur Unger on January 18th has deprived us of still another friend and fellow member. We join with his wife, Wanda, and family in mourning his passing.

PLEASE NOTE:

Harold S. Feinberg has recently undertaken the work of Librarian for the New York Shell Club's library. Mrs. Harold Feinberg, (Selma) continues with the work of cataloguing. Our thanks to the Feinbergs, who have made a working, lending library out of our collection of books and literature.

SHELL SHOW DATES

Southwest Florida Conchologist Society: "Just a slight correction on the dates of our Shell Show. Show dates: March 6th, 7th, 8th & 9th. Our show this year will be held in the beautiful 'Rose Garden' building, Cape Coral, Florida. Please extend an invitation to your club members visiting Florida during the above dates to either show with us or visit our show." . . . Helen Denny, Pres.

Chicago Shell Club: Shell show during March in the Field Museum of Natural History.

South Florida Shell Club (Miami): The club's seventh show will be held March 29th, 30th and 31st at the Museum of Science. (See also NOTES No. 147)

(Continued from)
(NOTES 146, 147)

MOLLUSKS AND LITERATURE

by Morris K. Jacobson

VII cont'd:

Toulouse-Lautrec, the dwarfed Parisian artist, published a Bestiary in which he has this to say about snails:

> Immobile in the cold season, his giraffe-like neck withdrawn, the snail sits like a bump on a log. He takes a walk only when the good days come, dragging himself along by his tongue.

Which would cause us to refer to them as Gastrolingua rather than Gastropoda!

Robert Crichton, the author of the popular novel "The secret of Santa Vittoria", apparently had little experience with getting snails to move. He writes:

> (He) began to move the parts (of the engine) by hand and they began to move on their own after that, grudgingly, only as far as they had to go, the way a snail moves when it is prodded.

Everyone who has ever tried it knows that when a snail is prodded it just retires grumpily into its shell. Baron Cuvier, the greatest of the eighteenth century naturalists, should have known better when he wrote thus disparagingly of our favorite phylum:

> As a group, they (i.e. the pulmonates) are generally inferior to the sea-snails, on account of the comparative imperfection of their senses, and the union of the functions of both sexes in each individual.

The first rather meaningless stricture is obviously a cover-up for the detail that really upset this very proper young man. In 1880 G. W. Tryon republished this sentence verbatim without giving the original author credit for it. But even our newspapers are not always reliable in matters malacological. This item appeared in the New York Times (March 17, 1968): "The report noted that marine life such as limpets and barnacles performed a useful function because they acted as scavengers keeping the beaches free from decaying matter...." It must be fun to watch limpets and barnacles scampering over a littered beach busily cleaning up.

A. A. Milne, the creator of the immortal Pooh and his friends, may not have been altogether wrong when he wrote:

> James gave the huffle of a snail in danger,
> Nobody heard him at all.

When a big snail like Helix pomatia or Otala lactea suddenly withdraws into its shell it produces a sound which might scientifically be described as a "huffle"..... Spanish children are taught an infallible method of enticing a withdrawn snail out of its shell. Hold the beast in your hand and clearly say:

> Caracol, caracol,
> Saca tus cachos al sol.

(Snail, snail, stick out your horns into the sunlight.) It is not known if this message is effective if spoken in English.

(concluded next page)

VIII

Paronomasia or punning on the various meaning of the word "shell" is more common than we'd like it to be. The most widespread is perhaps that priceless remark of all our non-conchological friends: "Oh ho, I see you're in the shell game!" -- accompanied by an unpleasant, grating laugh. Shakespeare is not above this sort of thing. In "Taming of the Shrew" (4:1:66) he has one of his characters say: "Why, t'is a cockle or a walnut shell." Mark Twain wrote the most elaborate of these puns:

> Conchology....relates only to shells. At the same time, however, a man who opens oysters for a hotel, or shells a fortified town, or sucks eggs, is not, strictly speaking, a conchologist.

And at least one conchologist turned poet drew a rather heavy lesson from such an unfortunate homonomy in terminology:

> ...men above endure a thousand hells,
> For countless hours trading metal shells
> Far less esthetic, more destructive far
> Than any that one finds upon a bar
> Of sand or on a beach or in a cove.

M. Moore, NAUTILUS, 56:108, 1943

IX

Finally in our search we came upon instances where philosophical thoughts rest sometimes drearily, sometimes effectively, on the lowly mollusk. A Shell Oil Company advertisement states rather sententiously:

> "Since antiquity the shell has symbolized the quest -- man's eternal search for knowledge."

I never knew that. Did you? Mrs. Lindbergh makes a much more effective use of shells: "Perhaps," she wrote in the book we have earlier referred to, "middle age is, or should be, a period of shedding shells; the shell of ambition, the shell of material accumulations and possessions, the shell of ego." Here the word "shell" is used in much more than a conchological sense.

(The above material comprised a presentation by Mr. Jacobson at the annual meeting of the American Malacological Union, Corpus Christi, Texas, July 1968, under the title "Literary Mollusks".)

GIFTS TO THE NYSC LIBRARY

We wish to thank Hugh and Marguerite Stix for presenting to us a copy of their beautiful book, THE SHELL -- FIVE HUNDRED MILLION YEARS OF INSPIRED DESIGN, which is co-authored by R. Tucker Abbott, photographs by H. Landshoff. It is a much appreciated addition to our library.

We wish to thank another of our NYSC authors, Veronica Parker Johns, for presenting to us a copy of her latest work, SHE SELLS SEA SHELLS, an account of how she became enamored of the shells and turned a dusty shop into "Seashells Unlimited". To read it is to visit with her.

(Both books were announced in NOTES 146 -- price, publisher, etc.)

ON THE CARE OF A CAPTIVE NEOSIMNIA

by Dorothy Raeihle

NOTES No. 146 carried a general description of the shelling at Mustang Island, Texas, on the occasion of the AMU field trip last July 19th. The Neosimnia acicularis Lamarck, the "West Indian Simnia", provided the most exciting collecting that day. They were found on the great coils of yellow and purple sea whip that had been cast ashore. The Neosimnia feed on this sea whip, which is a soft coral, Leptogorgia.

Having been given a live yellow Neosimnia, I hunted some fresh sea whip for it. The condition of the coils on the beach seemed dubious, so I collected a small piece that was floating several yards offshore. Back in the hotel at Corpus Christi, quiet in a container of clean sea water, the yellow sea whip put out its polyps. They showed close together the full length of the approximately 17" piece, yellowish-white, rather bulbous; around the orifice of each polyp were little roundish protrusions that gave a somewhat scalloped effect. The Neosimnia was 14 mm. long, with golden yellow shell and a mantle of pale yellow with a fine over-all pattern of purplish brown lines.

During the ensuing four months the Neosimnia and its piece of sea whip were kept in an oversized container, about 9" x 12", with very shallow sea water that was changed frequently. The Neosimnia continued to be active and gradually consumed the sea whip until the "whip" (the central, wire-like core) was almost completely exposed. Meanwhile, friends in Florida were unable to supply us with fresh food, though they tried. It seems that this yellow sea whip comes in only rarely from the far reefs or the Bahamas. Moreover, there was the problem of keeping it alive until it could be delivered here. But as the sea whip in the aquarium was not spoiling -- merely diminishing -- the need was not too pressing.

We took the still lively Neosimnia to the Florida Keys with us last November, thinking surely that with fresh sea whip available it would feed on a Florida substitute. Offered one at a time were five different species of sea whip plus a piece of dried sea fan. Each was promptly investigated then completely refused by the snail. (Also, each species of sea whip spoiled after a few days.)

On our return trip we stopped for a day at Jekyll Island, Georgia. The afternoon of our arrival we found the wide beach dotted with sprays of sea whip, mostly yellow, but also some purple species. We offered these, too -- but they were ignored. Then just at dusk we found a small spray of yellow sea whip in the water's edge; apparently it had been stranded by just the last wave. On it were two quite small Simnia -- one yellow, one lavender, belying the generality that the color of the Simnia is always that of the sea whip upon which it is found. This piece of sea whip caused an instantaneous reaction from our Neosimnia, which came to it very quickly and started to feed, continuing steadily through the evening and probably through the night, as evidenced by the powdery yellow feces the next morning.

The various species of sea whip we'd collected were examined under magnification. All the species refused by the Neosimnia had polyps that, though different, could all be called "flower-like". The two species, one from Texas and one from Jekyll Island, that the Neosimnia fed upon had rather bulbous polyps with the edges of the orifices

similarly "scalloped" rather than "petalled". I do not know the names of the soft corals; perhaps this small description of the polyps will be meaningful to one of our readers who has studied them. At any rate, we had succeeded in finding the right sea whip for our Neosimnia.

These were the last of the observations on the Neosimnia, as when we reached our Virginia stop all three Simnia had died extended. The water which was in their container at that time had been collected from a tide pool, intertidally situated, toward the north end of Jekyll Island, ocean side. It was not discovered until the Simnia were found dead that the water was of too low a salinity for marine specimens. We do not know why this tide pool was merely brackish. Drainage from the light rain of the morning? But there were no pipes or gullies for drainage to the area. An under the beach, fresh water spring? Perhaps. At any rate, any future "tide pools" will be tested for salinity before using the water in our aquariums. Of several specimens that had been subjected to this water of low salinity, those lost were all non-operculates. Fortunately only some of our specimens had been so insulted; most arrived in New York in good condition.

DID YOU KNOW . . .

That recent systematic samplings of the Gulf of Mexico indicate that the calico clam, Macrocallista maculata, and the sunray venus clam, Macrocallista nimbosa, may become commercially important and a permanent feature of Florida's seafood production? (Sea Frontiers)

That fish and wildlife frequenting coastal areas are especially vulnerable to chemical insecticides because of the propensity of these compounds to disseminate in drainage systems and to accumulate in estuaries? Recent studies on the effects of insectides on marine organisms demonstrate that concentrations which are not sufficient to control many species of pestiferous insects, including several species of salt-marsh mosquitos, nevertheless can decrease the productivity of phytoplankton populations, kill eggs and larvae of oysters and clams, inhibit the shell growth of oysters, cause significant alterations in metal composition of clams,....and disrupt ovary development of molluscs and teleosts. Although direct poisoning is the most obvious influence of insecticides, indirect harm can result to higher animals by concentration of chemicals in their passage through food chains or by reduction in numbers of important food organisms......

(Pesticides in the Marine Environment, by
Ronald Eisler in UNDERWATER NATURALIST)

That the U. S. Post Office does not forward 3rd class mail? Please, pul-leeze give us your change of address promptly, lest your NOTES be returned to us (at a fee) marked "Undeliverable as addressed."

We would appreciate it if our members would inform us of any errors or omissions on the accompanying roster.

dr

AMERICAN MALACOLOGICAL UNION NEWSLETTER

Vol. I, No. 2 January 1969

NOTES ON THE HISTORY OF THE ANNUAL REPORTS

by Morris K. Jacobson

The first annual meeting of the AMU took place in Philadelphia from April 30 to May 2, 1931, shortly after the founding of the organization. The brief report of the meeting appeared in NAUTILUS, 45:1-5. This consisted largely of a listing of the papers given by title as well as a copy of the constitution and a list and photo of the attending members. A membership list of the organization was first published as a separate pamphlet on April 1, 1932. For the account of the second meeting, Secretary Imogene S. Robertson published a mimeographed report of 11 pages called "Rambling Notes on the Second Annual Meeting of the American Malacological Union Meeting in Washington, D. C. May 26-28, 1932". The papers were briefly described and a short account of ensuing discussion, if any, was given. Another somewhat briefer account of the same meeting appeared in NAUTILUS, 46:1-3. The account of the third meeting (Cambridge, Mass., May 26-27, 1933) appeared only in NAUTILUS 43:37-44, with a membership list. This again is a brief account by the secretary of the events and a listing of the titles of the papers read.

With the fourth meeting (Stanford University, June 25-28, 1934) the AMU began publishing the reports as separate pamphlets. The earlier accounts were written entirely by the secretary who reported briefly on the contents and the ensuing discussion for each paper. The first two numbers of these pamphlets were called REPORT. For the sixth meeting (St. Petersburg, Florida, April 21-24, 1936) the title page was changed and the word "Report" dropped. Though the layout of the title page changed regularly, the essential form and wording was preserved through the 11th meeting (1942).

World War II forced some temporary changes. There were no meetings from 1942 to 1945 and the NEWS BULLETIN during those years contained reports from members and other miscellanies: In 1942 appeared lengthy obituaries for Frank Collins Baker and Berlin Hart Wright, both specialists in naiads. In 1943 the words NEWS BULLETIN and ANNUAL REPORT appeared, and the cover design was changed. The issues for 1944-45 were combined. Meetings were resumed in 1946.

The early system of the secretary writing her own report of each paper was continued through 1947 (13th meeting). In 1948 the authors began submitting their own abstracts. Also, the first section of the REPORTS devoted to the activities and meeting of the Pacific Division of the AMU appeared in 1948, the year of its founding. The reports of member and affiliated clubs first appeared in 1949 for the Clench Conchological Club, the Conchological Section of the Buffalo Society of Natural History, The Long Beach Shell Club, and the New York Shell Club.

The next important change in title took place in 1952 (18th meeting) when the words "News Bulletin" were dropped, shortening the title to ANNUAL REPORT. The present name, ANNUAL REPORTS, first appeared in 1955 (21st meeting). In 1959 the number "25th" was passed over and hence succeeding numbers through 1962 were put one year ahead. (The correct serial numbers of the meetings are: 1959, 25th meeting;

1960, 26th; 1961, 27th; and 1962, 28th.) The cover picture, of Io fluvialis Say, drawn by Mr. Anthony D'Attilio, first appeared on the REPORTS of 1960.

In the course of the history of the ANNUAL REPORTS there were few changes in the personnel directly responsible for its publication. Mrs. Robertson continued as secretary until 1951 when the present secretary, Mrs. Margaret C. Teskey, assumed her duties. Among other improvements, Mrs. Teskey introduced the "map" system of identifying people in the group photos. In 1955 the burden of producing the publication became great enough to have Dr. George M. Moore take over the newly created position of Publications Editor. He occupied this post until ill health compelled him to retire in 1960. In 1961 the present Publications Editor took over.

The ANNUAL REPORTS and its predecessors grew steadily in size from 7 pages in 1931 to 122 pages in 1965. Future numbers will contain about 100 pages. In the 1968 number are the first figures of shells discussed in an article. Plans are to publish more illustrations in the future. Full papers and summaries of papers now outnumber simple abstracts. Other innovations and/or improvements will appear as they suggest themselves or are suggested by readers and authors.

TESKEY TESTERS

The duties of a secretary of an organization such as the American Malacological Union are fairly routine but occasionally the mail brings a tidbit that makes one blink and wonder if perhaps some prankster is at work. However, the following gems were convincing as to authenticity and replies were made accordingly.

During World War II a serviceman who said he was writing on behalf of himself and several buddies requested information on the subject of manufacturing pearls. They had learned, said he, that one employed mother's milk. "But we don't know just how it is done. Please let us know the technique." The then secretary lost no time in disillusioning the writer and, it is to be hoped, forwarded some instructive literature to the misinformed young men.

Quite often a letter comes from a student asking for information on one or another phase of malacology, "At least two pages, please, and by next Tuesday SURE." But no student devised the neat questionnaire that provided "yes" and "no" boxes to be checked after each question: Do snails hear? breathe? think? How does one determine the sex? (Ample space left here for comprehensive reply.) It concluded, "Please answer these questions completely and truthfully. We love our little pet which we call 'Snelly'." Our question: "Species?"

Finally, there was the communication from a professional man who had read messages from departed friends in the drawings formed by the mucus trails left by snails on an area of his cement paving. Has such a phenomenon ever been noted and investigated?

MARGARET C. TESKEY, Secretary
American Malacological Union.

January 1969

ROSTER OF NEW YORK SHELL CLUB, INC.

Founded in January, 1949 by Mr. M. Karl Jacobson and Dr. Walter Jacobs.

Life memberships have been bestowed upon Dr. and Mrs. Julius Wisoff
Miss Mabel Bender
Mr. and Mrs. Anthony D'Attilio

Honorary membership is held by Dr. William K. Emerson.

* = Charter member.

Abramson, Dr. Joseph L.	20 Plaza Street, Brooklyn, New York 11238
Allen, Mrs. Betty	Box 822, Port Isabel, Texas 78578
Altschul, Claudia Franck	145 West 55th St., New York, N. Y. 10019
Antonowitz, Mr. & Mrs. W.	149 Starr St., Brooklyn, New York 11237
Atkins, Mr. & Mrs. Martin	174 East 90th St., New York, N. Y. 10028
Avellanet, Mrs. Alphonse	341 Griggs Avenue, Teaneck, New Jersey 07666
Barlow, Mrs. G. Barton	5 Downey Drive, Tenafly, New Jersey 07670
Bauer, Mr. Edgar	Daniel Carrion 249, Miraflores, Lima, Peru
Barrett, Miss Sandra	155 East 55th St., New York, N. Y. 10022
Beaven, Mrs. Grace	175 W. Ridgewood Ave., Ridgewood, New Jersey 07450
Beebe, Rev. Lawrence	401 E. 81st St., Apt.16E, New York, N. Y. 10028
Bendersky, Mr. Israel	111-45 76th Ave., Forest Hills, N. Y. 11375
Bergmann, Mr. John H.	104 Vernon Drive, Scarsdale, New York 10583
Beyer, Mr. Donald	R. F. D. #1, Elmer, New Jersey 08318
Bixby, Mrs. H. M.	Captiva, Florida 33924
Blaine, Mr. Alger P.	74 Palmer Ave., Springfield, Mass. 01108
Blankenstein, Carole	
Bogart, Mrs. John	425 East 86th St., New York, N. Y. 10028
Bosch, Dr. Donald T.	American Mission Box 11, Muscat, Oman, Arabian Gulf
Britz, Mr. Steven J.	Whitney Plaza Apts., No. 442, 32 Whites Ave., Watertown, Massachusetts 02172
Broward Shell Club	c/o J. W. Jacobs, 6801 North 7th Street, Margate, Florida 33063
Buck, Miss Alice	55 Burns Street, Forest Hills, New York 11375
Burke, Mrs. Alice	1820 S. Austin Blvd., Chicago, Illinois 60650
Burt, Mr. & Mrs. Arthur	Schooner Place, Sanibel, Florida 33957
Cameron, Mr. Philip	210 Genesee Street, Utica, New York 13501
Campbell, Mr. George	99-540 Ohekani Place, Aiea, Oahu, Hawaii 96701
Carroll, Mrs. Barbara	10 Spencer Ave., Huntington Station, N.Y. 11746
Cate, Mr. & Mrs. Crawford N.	12719 San Vicente Boulevard, Los Angeles, California 90049
Chirin, Miss Ludmilla	60-87 70th Avenue, Brooklyn, New York 11227
Clover, Mr. Phillip W.	P.O.Box 3246, Chula Vista, California 92011
Coddington, Mrs. D. H.	111 East 80th St., New York, N. Y. 10021
Cohen, Miss Judith	210 East 47th St., New York, N. Y. 10017
Coley, Mrs. Dorma P.	2221 Bay View Rd., Punta Gorda, Florida 33950
Compitello, Mrs. Juliette	399 St. John's Place, Brooklyn, N. Y. 11238
Cope, Mr. & Mrs. James	44 East 67th St., New York, N. Y. 10021
Cowles, Mr. Edward F., Jr.	12 Hillcrest Ave., New Rochelle, N.Y. 10801
Craine, Mrs. Zur W.	Open Air P.O., Box 974, 1st Ave. N. and 4th St., St. Petersburg, Florida 33701 (Temporary)
Culp, Mr. Derrin Culp, Mr. & Mrs. Robert	310 West 261st St., Bronx, New York 10471
Cusumano, Mr. Vincent	309 Court Street, Brooklyn, New York 11231

Daley, Florence G.	15-17 Surf View Walk, Ocean Beach, N.Y. 11770
*D'Attilio, Mr. & Mrs. Anthony	3035 Bern Drive, Laguna Beach, Cal. 92651
D'Emidio, Vincent	Bronx?
Denny, Mrs. Helen	Box 52B, Route 1, Sanibel Island, Florida 33957
DeWind, Mrs. Adrian	37 West 12th St., New York, N. Y. 10011
Dubin, Mrs. Pauline	1202 Spofford Ave., Bronx, New York 10474
Dunn, Mr. V. Roger	5021 18th Avenue South, Gulfport, Florida 33737
Dvorak, Mr. Stanley J.	3856 West 26th St., Chicago, Illinois 60623
Eddison, Dr. Grace G.	810 Soundview Drive, Mamaroneck, N. Y. 10543
Edgell, Mrs. Stephanie	1 Beekman Place, New York, N. Y. 10022
Ervin, Mrs. Thomas	530 East 72nd St., New York, N. Y. 10021
Espinosa, Miss Tania	Riverdale?
Fackert, Mrs. Dorothy	R. D. 1, Box 355, Sussex, New Jersey 07461
Falk, Mr. & Mrs. Paul	140-11 219th St., Laurelton, New York 11413
Falter, Mr. Anton	69-45 108th St., Forest Hills, New York 11375
Falter, Dr. Maria L.	
Feinberg, Mr. & Mrs. Harold S.	2334 Tiebout Ave., Bronx, N. Y. 10458
Fellows, Mr. Carl F.	372 - 11th St. Ocean, Marathon, Florida 33050
Fisher, Mr. & Mrs. Fred	31-51 47th St., Astoria, New York 11103
Fleckling, Mrs. Walter	Lloyd Neck, New York 11743 (Laurel Ct.?)
Ford, Mr. & Mrs. E. Flynn	2100 South Ocean Drive, Ft. Lauderdale, Florida 33316
Freed, Miss Rita	221 Sunset Ave., Hightstown, New Jersey 08520
Freed, Mr. Sam	
French, Mrs. Hubert	Box 87-C, Apt. 1, Key Largo, Florida 33037
Frye, Mr. John	2 Tudor City Place, New York, N. Y. 10017
Fuldner, Mr. & Mrs. Mansfield C.	440 Riverside Drive, Apt. 41, New York, N. Y. 10027
Garcia-Ramos, Mr. Manuel	218 West 16th St., New York, N. Y. 10011
Garelik, Pinchas	448-1 Eilat, Israel
Garlinghouse, Mrs. Helen	327 Roxbury Rd., Garden City South, N.Y.11530
Gaston, Mrs. William H.	147 Duff Drive, Avon Lake, Ohio 44012
Geller, Mr. & Mrs. L.	336 DeMott Ave., Rockville Center, N. Y. 11570
Germer, Mr. & Mrs. John	653 Briarcliff Ave., Maywood, New Jersey 07607
Gilevich, Miss Zoya	51 West 73rd St., New York, N. Y. 10023
Golden, Dr. Joseph	1515 Hanover Ave., Richmond, Virginia 23220
Goldshein, Miss Sandra	620 East 20th St., New York, N. Y. 10009
Goodfriend, Mr. Glenn	Lexington House, Fordhill Village, Scarsdale, New York 10583
Gordon, Henry S.	1 Washington Sq. Village, New York, N.Y. 10012
Graham, Mr. John A.	356 Little St., Belleville, New Jersey 07109
Grauer, Miss Zara	227 East 57th St., New York, N. Y. 10022
Greenberg, Miss Lenore	21 Bond St., Great Neck, New York 11021
Greenberg, Miss Lissa	70 Capitolian Blvd., Rockville Center, N.Y.11570
Greer, Mr. DuPuy	140 East 46th St., New York, N. Y. 10017
Grosser, Mrs. Regina	19 Cumming St., New York, N. Y. 10034
Hagerty, Mr. Timothy	237 West 11th St., New York, N. Y. 10014
Hamilton, Mr. W. J.	615 Highland Avenue, Ithaca, New York 14850
Hano, Mr. Philip	515 East 89th St., New York, N. Y. 10028
Harmon, Mr. & Mrs. Francis	464 Riverside Drive, New York, N. Y. 10027
Hausman, Mr. Frank	176 Thompson Street, New York, N. Y. 10012
Heebner, Mrs. Albert D.	58 Forest Hill Rd., West Orange, N. J. 07052
Heist, Mr. & Mrs. L. E.	2371 Middlegreen Court, Lancaster, Pa. 17601

Hempstead, Mrs. Elinore 150 East 73rd St., New York, N. Y. 10021
Hendricks, Miss Dorothea 307 West 83rd St., New York, N. Y. 10024
Herrmann, A. W. 2618 Orange Blvd., Kissimmee, Florida 32741
Hickman, Mrs. Harriette 11015 First Ave., Stone Harbor, N. J. 08247
Hicks, Mrs. Edwin S. 7170 Lucky Drive W., Jacksonville, Fla. 32208
Hislop, Mr. Codman Dorset, Vermont 05251
Hoag, Miss Norma 41 Perry Street, New York, N. Y. 10014
Hoffman, Mr. & Mrs. Ray 38 Mountain Ave., Mendham, New Jersey 07945
Holmes, Mrs. Charlotte M. 31 Huntington St., Southampton, N. Y. 11968
Holved, Mr. William 365 West End Avenue, New York, N. Y. 10024
Hubbard, Mr. & Mrs. Robert D. 3957 Marlow Court, Seaford, N.Y. 11783
Huger, Mrs. Doris 229 East 25th St., New York, N. Y. 10010
Hulswit, Mr. Mart 680 West End Avenue, New York, N. Y. 10025
Hunter, Capt. & Mrs. Blaine 126 Cedar Ave., Hackensack, N. J. 07601
Hunter, Mrs. Sandra 350 East 77th St., New York, N. Y. 10021

Ivanovic, Mrs. Scarlett 177 East 77th St., New York, N. Y. 10021

Jackson, Mrs. Carole M. 45 East 135th St., Apt.9D, New York, N.Y. 10037
*Jacobs, Mr. & Mrs. George E.
Jacobs, Miss Ellen 853 Riverside Drive, New York, N. Y. 10032
*Jacobs, Dr. Walter H. 585 West End Avenue, New York, N. Y. 10024
*Jacobson, Mr. & Mrs. M. Karl 455 Beach 139th St., Rockaway Beach,
New York 11694
Jensen, Mrs. Dorothy 3083 Crescent Street, Astoria, N. Y. 11102
Jensen, Mr. Russell 35 Hoover Ave., Bloomfield, New Jersey 07003
Johns, Veronica Parker 155 East 38th St., New York, N. Y. 10016
Johnson, Mr. Richard I. 124 Chestnut Hill Road, Chestnut Hill,
Massachusetts 02167
Junge, Mr. Reinhard 140 West 69th St., New York, N. Y. 10023

Katsaras, Mr. Nick 479B S. Washington Ave., Bergenfield, N.J. 07621
Katz, Mr. & Mrs. Bernard 81 Jane Street, New York, N. Y. 10014
Kell, Mrs. Mildred 487 Jefferson Road, Princeton, N. J. 08540
Kent, Mr. Stanley S. 25 Valley Drive, Jordan, New York 13080
King, Mrs. Maud T. 448 East 88th St., New York, N. Y. 10028
Kirwan, Mrs. Judith 15 Seth Court, Grymes Hill, Staten Is.,N.Y.10301
Kline, Mr. & Mrs. George F. P. O. Box 271, Madison, New Jersey 07940
Knauer, Mrs. Freda S. 10318F Malcolm Circle, Briarcliff Village,
Cockeysville, Maryland 21030
Kostelnik, Mr. Joseph 697 Hawley Lane, Stratford, Connecticut 06497
Kristjansson, Mr. Gudmundus 41 Perry St., 1A, New York, N. Y. 10014
Kudatsky, Mrs. Morris 91-07 68th Ave., Forest Hills, New York 11375
Kuntz, Mr. Wm. Donald 1830 Park Ave., Bridgeport, Connecticut 06604

Laavy, Mr. Thomas L. 415 N. Main St., Greenville, S. C. 29601
Lackner, Mrs. Mae 130 Elliot Place, Bronx, New York 10452
Laursen, Mr. John C. 401 Morris Ave., Rockville Centre, N. Y. 11570
Lawson, Mrs. Selma R. P. O. Box 46, 722 Pass-A-Grill Way,
Pass-A-Grill, Florida 33741
Lee, Dr. & Mrs. Harry G. 5603 Northfield Road, Bethesda, Maryland 20034
Lessner, Mr. & Mrs. Rudi 1211 Neil Avenue, Bronx, New York 10461
Lewis, Dr. John R. 23 W 551 Warrenville Rd., Lisle, Illinois 60532
Lichtenberger, Mrs. F. M. 340 Dunellen Ave., Dunellen, New Jersey 08812
Loery, Dr. William H. 665 Prospect Ave., Little Silver, N. J. 07739
Lopez, Gabriel García 37 Munoz Rivera St., Aguas Buenas, Puerto
Rico 00607

Mandel, Mr. Louis P.	9 Richfield St., Plainview, New York 11803
Manes, Mrs. Sidney	Knollwood Road, Fayetteville, New York 13066
Manzo, Mr. William	619 38th St., Union City, New Jersey 07087
Marsh, Mrs. Therese	P.O.Box 22291, Fort Lauderdale, Florida 33315
Maurrasse, Mr. Florentin	London Apt., 96-02 57th Ave., Corona, N.Y. 11368
May, Mrs. Elizabeth	113 East 60th St., New York, N. Y. 10022
Mazel, Mrs. Bernard	69 Melrose Drive, New Rochelle, New York 10804
Merrill, Mr. Arthur S.	Box 238, Route 4, Easton, Maryland 21601
Meyer, Mr. Harvey G.	Captiva, Florida 33924
Migliaccio, Mr. & Mrs. Salvatore H.	306 Fisher Avenue White Plains, New York 10601
Migliaccio, Miss	
Migliaccio, Christopher	
Miller, Dr. Sheldon	2122 Smith Street, Merrick, New York 11566
Mohorter, Mr. Willard	8095 Hamilton Ave., Cincinnati, Ohio 45231
Morris, Mr. Morton	344 West 72nd St., New York, N. Y. 10023
Moss, Mr. & Mrs. M. W.	542 Fourth Ave., Westwood, New Jersey 07675
Mueller, Mrs. Muriel	54 Nestro Road, West Orange, New Jersey 07052
Muller, Mr. Harold J.	85-29 261st St., Floral Park, New York 11004
Murphy, Mr. William S.	116 East 83rd St., New York, N. Y. 10028
Murray, Mrs. Francis A.	3741 N.E. 24th Ave., Lighthouse Point, Fla. 33064
Musnick, Mr. & Mrs. Eric	14 Stuyvesant Oval, New York, N. Y. 10009
McClure, Mrs. Virginia	317 S. Wetherly Dr., Beverly Hills, Cal. 90211
McCormack, Mr. Brooks	48 East 53rd St., New York, N. Y. 10022
McDougall, Mrs. Grace	16 Baxter Ave., New Hyde Park, N. Y. 11040
McLellan, Mr. Jack H.	27 Vassar St., Garden City, New York 11530
McMillen, Mr. & Mrs. David S.	165 Kemah Rd., Ridgewood, N. J. 07450
Naide, Dr. Meyer	2034 Spruce St., Philadelphia, Pa. 19103
Nankervis, Mr. & Mrs. Ronald	2557 Standish Ave., Union, N. J. 07083
Nichols, Mr. & Mrs. Robert J.	55-05 Woodside Ave., Woodside, N.Y. 11377
Nordstrom, Mr. Harry	1426 "H" St. NW, Washington, D. C. 20005
Old, Mr. William E.	900 West 190th St., New York, New York 10040
Palmer, Mrs. Katherine V. W.	206 Oak Hill Rd., Ithaca, New York 14850
Papavassiliou, Capt. Achilles	Nikitara 23, Athens (Ano Dafni) T25, Greece
Parsons, Mrs. G. Lewis	Route 5, Towanda, Pennsylvania 18848
Parsons, Mr. & Mrs. Norman	420 East 23rd St., New York, New York 10010
Pasternack, Dr. Richard	1224 Seminole Dr., Fort Lauderdale, Fla. 33304
Pequignot, Mrs. Leon S.	526 Portage Lakes Drive, Akron, Ohio 44319
Petersen, Mrs. Bertha	48 Holly Avenue, Mineola, New York 11501
Petersen, Mr. Neil	
Petit, Mr. & Mrs. Richard E.	P.O.Box 133, Ocean Drive Beach, S.C. 29582
Pettitt, Mr. Charles	Zoology Dept., Manchester Museum, The University, Manchester 13, England
Pierce, Mrs. H. Denny	82C Franklin St., Tenafly, New Jersey 07670
Plummer, Mrs. Berniece	47 Tulane Parkway, Rochester, New York 14623
Porreca, Mr. Humbert	287 Bailey Rd., West Henrietta, N. Y. 14586
Potter, Mr. Lawrence	15 Rogers Ave., Bellport, New York 11713
Putnam, Mr. John Francis	84 Jane Street, New York, New York 10014
Raeihle, Mr. & Mrs. George	7924 Ankener Ave., Elmhurst, N. Y. 11373
Rauscher, Miss Mary	449 East 14th St., New York, New York 10009
Rebbo, Mrs. Nina	22-63 37th St., Astoria, New York 11105
Rebbo, Miss Marcia	
Reeves, Mrs. Marjean	429-A 8th St., Brooklyn, New York 11215

Renman, Mrs. Edward S.	1528 East 53rd St., Brooklyn, New York 11234
Rettig, Hillary	5900 Arlington Ave., Bronx, New York 10471
Richards, Mrs. Margaret	c/o New Zealand Consulate General, 630 Fifth Avenue, New York, New York 10020
Richmond, Mrs. Ruth	220½ S. Reeves Dr., Beverly Hills, Cal. 90212
Ridge, Mrs. William	373 Fortuna Ave., St. Augustine, Fla. 32084
Robin, Mr. & Mrs. Melvin	Old Sterling Rd., Warren, New Jersey 07060
Robbins, Mrs. Kit	Hotel Blackstone, 50 East 58th Street, New York, New York 10022
Rochester Shell & Shore Club	c/o Mrs. James Barton, Librarian 20 Newfield Drive, Rochester, New York 14616
Rothenbuecher, Mrs. E. H.	205 East 77th St., New York, New York 10021
Ruddley, Mr. & Mrs. John	97-40 62nd Drive, Rego Park, New York 11374
Rudie, Mrs. Jeanette	59 Covington Road, Yonkers, New York 10710
Russell, Mrs. Mary T.	378 Claremont Ave., Montclair, N. J. 07042
Saul, Mrs. Mary	Gate Cottage, Castlemorton Common, Malvern, Worcestershire, England
Savino, Miss Angela	31 West 56th St., New York, New York 10019
Schick, Dr. Jane	167 East 71st St., New York, New York 10021
Schmidt, Mrs. Judith	210 West 251st St., Bronx, New York 10471
Schmidt, Joel	
Schmulowitz, Mrs. E.	25 Grand Avenue, Northport, New York 11768
Schoen, Mr. Donald R.	11 Hamilton Ave., Bronxville, New York 10031
Schoonmaker, Mrs. Thelma	480 Hunter Road, Ridgewood, New Jersey 07450
Schreiber, Mr. William	29-35 201st St., Bayside, Queens, N. Y. 11360
Seamon, Mr. & Mrs. Neal	1650 Kanunu St., Honolulu, Hawaii 96814
Seid, Mrs. Shirley	1075 Park Avenue, New York, New York 10028
Sheets, Mrs. Elva D.	R. R. 4, Huntington, Indiana 46750
Sheldon, Mrs. Walter	1558 North Ocean Way, Palm Beach, Florida 33480
Shocken, Mr. Theodore	117 Old Army Road, Scarsdale, New York 10583
Sigg, Mrs. Theodora	453 West Saddle River Road, Upper Saddle River, New Jersey 07458
Skytkowski, Mr. Stanley	156 Highland Ave., Yonkers, New York 10705
Slater, Mr. Eddy	14 Nassau Drive, Great Neck, New York 11021
Smith, Mr. & Mrs. Dan	9 Forsgate Lane, Bordentown, New Jersey 08505
Sokoloff, Mr. Stanley	2200 Central Road, Fort Lee, New Jersey 07024
Sokoloff, Miss Heloise	
Sorensen, Miss Barbara	254 West 73rd St., New York, New York 10023
South Padre Island Shell Club	c/o Mrs. Homer Poe, Pres., Box 355, Port Isabel, Texas 78578
Speers, Mrs. Fred H.	Box 71, Conroe, Texas 77301
Spivack, Miss Stephanie	14 Fifth Avenue, New York, New York 10011
Spradley, Miss Jane	428 East 66th St., New York, New York 10021
Stark, Mr. & Mrs. Ernest H.	43-57 Union St., Flushing, New York 11355
Steele, Mrs. Jerry	16 Baxter Ave., New Hyde Park, New York 11040
Stephens, Mr. & Mrs. George M.	568 Longfellow Avenue, Virginia Beach, Virginia 23462
Stix, Mr. & Mrs. Hugh	13 Vandam Street, New York, New York 10013
Stout, Mrs. Gardner D.	150 East 73rd St., New York, New York 10021
Stout, Mr. & Mrs. Joseph	354 West Neck Road, Huntington, New York 11743
Subis, Mrs. Mary	26 Throop Avenue, Brooklyn, New York 11206
Taxson, Mr. & Mrs. Albert	25 Knolls Crescent, Bronx, New York 10463
Thome, Mrs. Doris	4 Scott Court, East Setauket, New York 11733
Thome, Mark	

Thompson, Mrs. Winfield S.	365 Stewart Ave., Garden City, N. Y. 11530
Travers, Louise Allderdice	22 East 69th St., New York, N. Y. 10021
Tricomi, Mr. & Mrs. Edw., Sr.	54-02 39th Ave., Woodside, New York 11377
Tricomi, Mrs. Elizabeth	39-39 57th St., Woodside, New York 11377
Ucko, Mr. Paul	731 West 183rd St., New York, New York 10033
Usticke, Mr. Gordon	1 North Street, Christiansted, St. Croix, U. S. Virgin Islands 00820
Van Riper, Dr. Mildred J.	609 Mayo St., Crystal Beach, Florida 33523
Van Sant, Mrs. H. G.	148 Seagate Road, Palm Beach, Florida 33480
Verin, Mrs. Layna	3840 Greystone Avenue, Bronx, New York 10463
Verin, Mr. David	
Walton, Mr. Ernest	330 East 33rd St., New York, New York 10016
Warner, Miss Carole	161 West 75th St., New York, New York 10023
Warshaw, Mrs. Sylvia	Allamanda Gardens #1, 1660 N. E. 191st St., North Miami Beach, Florida 33162
Weingartner, Miss Mathilde P.	17 Amelia Court, Staten Island, N. Y. 10310
Werner, Mr. Milton, Jr.	70 Richmond St., Brooklyn, New York 11208
Wheel, Mr. Adlai	4501 West Seneca Tpk., Syracuse, N. Y. 13215
Wicks, Mrs. Vilma	Flat 5, 457 St. Kilda Street, Elwood 3184, Victoria, Australia
Wightman, Dr. Eugene P.	85 Harding Road, Rochester, New York 14612
Wilie, Mr. W. L., Jr.	1405 McFaddin, Beaumont, Texas 77701
*Wilmott, Mr. George	R. R. 1, Box 189, West Hurley, New York 12491
Wisoff, Mrs. Julius	341 Filmore St., Hollywood, Florida 33020
Woodlock, Mrs. Ethelyn	15 Franklin Ave., Midland Park, N. J. 07432
Wright, Rev. Calvin T.	P.O. Box 155, Farmingville, L. I., N. Y. 11738
Young, Mrs. Ann	P.O. Box 846, Marathon, Florida 33050
Yucaipa Shell Club	c/o Mousley Museum of Natural History, Bryant St. & Panorama Dr., Yucaipa, Calif. 92399
Zager, Mrs. Joseph	200 Mt. Pleasant Ave., West Orange, N.J. 07052
Zucker, Mr. Mark J.	527 West 113th St., New York, New York 10025

EXCHANGE MEMBERSHIPS:

The New York Shell Club, Inc. exchanges publications with Shell Clubs, Malacological Societies, etc., twenty in number. (See Library Listings.)

COMPLIMENTARY MEMBERSHIPS:

We have been pleased to grant complimentary memberships when requested by the Departments of Mollusks of various museums in the United States and abroad, and to the Zoological Record. These total sixteen.

NYSC NOTES NUMBER 149 FEBRUARY 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY *

NEXT MEETING: SUNDAY, MARCH 9th, 1969 at 2:00 P. M.
PROGRAM: MARINE MOLLUSKS OF THE MARQUESAS ISLANDS (illus.)
by Dr. Harald A. Rehder, U. S. National Museum
NEW YORK HARBOR (illustrated)
by Mathilde P. Weingartner, S. I. I. A. S.

---

* SOCIAL -- AUCTION -- FILMS

Our April 13th meeting will be a social one, held in the rooms of the BROADWAY DANCE STUDIO, 31-08 BROADWAY, ASTORIA, QUEENS, NEW YORK, by courtesy of our member Dorothy Jensen. Details will be resolved at the March meeting and be given in the March NOTES. Meanwhile, get together those spare, those surplus, those tired-of shells and literature. They will be received by the committee at the March meeting and you may also bring more directly to the social. Your donations are NEEDED to make the affair a success. No item too large or too small!

A NYSC MEETING REFUSES TO BE CANCELLED

In the twenty-year history of the New York Shell Club there had never been a cancellation of a meeting until February 9th, 1969. The reason for the unprecedented action was a heavy snowfall that had started the previous day. On the morning of the 9th, newscasts consisted mostly of reports of stranded cars and the strangulation of surface transportation. It seemed certain that only members who could reach the Museum by subway could consider making the attempt, so after a phone consultation the president said, "Today's meeting is officially cancelled." Our guest speaker, Dr. Harald Rehder, who had come up from Washington the day before, was notified -- and he gamely agreed to come up again in March.

CBS radio announced the cancellation shortly after 10:30 AM, and at least once again. NBC may have announced it later. Bill Old subwayed down to the Museum to post a sign saying "Meeting cancelled" on the door of Room 319, and found twenty members holding a meeting, presided over by Vice President Mart Hulswit! Historian Nick Katsaras and Librarian Harold Feinberg were among the stalwarts (Nick lives in New Jersey). Mart reports that Bill disappeared briefly, then returned with enough _Oxystele tabularis_ Krauss, from Angola, West Africa, to go around, saying that anyone who came out for a meeting on such a day deserved a memento of the occasion.

The meeting was a lively one. After welcoming the hardy ones, Vice President Hulswit introduced DuPuy Greer, who spoke on his experiences in giving shell talks in schools, and of his appearance on the "Captain Kangaroo" TV show. He also displayed a fine, five-inch specimen of the rather rare dextral _Busycon contrarium_. Glenn Goodfriend spoke next, describing a freak specimen of _Cypraea_ (Glenn lives in Westchester County). Librarian Feinberg followed, giving the Club's literary resources a bit of publicity.

Bill Old then showed slides he had taken at the A. M. U. Meeting in

Corpus Christi. Noting that Karl Jacobson was not present, he also threw in some pictures of San Antonio's Hemisfair, the Alamo, and zoo animals that had caught his interest.

Mart then suggested a question-and-answer period, and a spirited one developed, apparently stimulated by the informality of the situation. Some of the questions elicited much "semi-organized" discussion.

After a short intermission Bill Old introduced his guest, Mr. Daniel Boust. Mr. Boust is a Frenchman who has spent most of his life in various areas of the South Pacific, beachcombing and diving. He was only 17 when he started the gypsy life, and he has supported himself by collecting specimens of interest and value, many of them molluscan. Mr. Boust was persuaded to talk about his storybook life and his collecting experiences. On the blackboard he outlined such habitats as the Tuamotu Islands, New Caledonia, New Hebrides, the Marquesas, the Society Islands, the Canaries, Cape Verde, Fiji, Australia, and also French Somaliland, West Africa, indicating the places and depths where he found his best shells. He spoke for an hour, and is described as a fascinating speaker and a delightful person. He lives, at present, in Calgary, Canada, and was in New York for only a short stay. He may be available to us as a speaker in the unknown future but meanwhile about fifty of us missed a rare experience.

This must have been one of the best meetings that was ever "cancelled" anywhere. And the adventure may not have ended in Room 319. Perhaps our next issue will carry a story titled, "How I Finally Managed to Get Home from the February 9th Shell Club Meeting."

. . . M. Werner

SHELL SHOW DATES

The Lower Keys Shell Club will hold a Shell Show at Key West, Florida. March 14, 15 and 16, 1969. Mrs. Margaret C. Teskey is working as chairman.

CONCERNING POLLUTION

"Let the limpets do it" is the heading for the following item which appeared in SCIENCE NEWS of January 18, 1969:

Oil washed onto Cornish beaches from the 1967 Torrey Canyon disaster (SN: 10/7/67, p. 343) was not destructive to marine life. Many molluscs even began to eat the oil cover. But toxic detergents used to clean up the oil mess were "utterly devastating," reports Dr. J. Eric Smith, director of the Plymouth Laboratory in Devon, England.

Some three million gallons of toxic detergents were poured into the sea and over the rocks and beaches of Cornwall. It completely denuded the shores of life, says Dr. Smith. Algae now cover the rocks in place of barnacles, molluscs and other animals and it will be several years before the ecology returns to normal.

In a few places, however, the oil was left untreated and the Plymouth scientists discovered that limpets and other molluscs were eating it. They had cleared large areas of rocks in relatively short time.

"It is probably best to let the animals clear the shores, if you don't have to maintain their economic value," says Dr. Smith. But he does

not condemn the use of detergents. It was a choice between vacationing children and marine life, he says.

(Much research has been done since the Torrey Canyon disaster of 1967, particularly by oil companies of the Netherlands who have devised methods of partially controlling such oil slicks without the use of detergents. However, these methods do not seem to have put into general use; we read that quantities of detergents are being used during the present emergency on the California coast. ...Ed.)

PUBLICATIONS:

Revised SEA SHELLS OF THE WORLD

That well-known "dollar guide" by R. Tucker Abbott has recently undergone a face-lifting and up-dating. With nearly a million copies in circulation in 6 different languages, both the new paperback and hardback editions have numerous nomenclatorial improvements. The genus Turbinella now replaces Xancus (p. 91); the genus Cassidaria becomes Galeodea (p. 66); Concholepas peruvianus Lam. gives way to the earlier name of P. picta Perry, and our old friend Murex florifer Reeve becomes M. dilectus A. Adams (p. 76). Data on the Glory-of-the-Seas is brought up to date, and the bibliography is modified. Altogether, there are over 100 changes since the book first appeared seven years ago. Alas, inflation has even caught up with this shell book. The "dollar guide" is now $1.25!

Shell News, February 3, 1969

SEASHELLS OF NORTH AMERICA,
A Guide to Field Identification

By R. Tucker Abbott; illustrated by George F. Sandstrom; under the editorship of Herbert S. Zim. 280 pages, over 1,000 illustrations in color. Copyright 1968 Western Publishing Co., Inc. A Golden Field Guide published by Golden Press, New York. Plastic coated paperback 4½"x7½" $3.95; Clothbound $5.95.

This field guide is much more than a book simply for identifying shells. The 850 species illustrated in color are given treatment in the text beyond the mere description of shell characteristics. Each page of illustrations is faced by the descriptive text which includes basic information about family characteristics of both shell and animal, plus notes on ecology, feeding and reproduction. Frequently there are additional illustrations to further aid in identification, such as the structure of a hinge, surface sculpture, operculum, juvenile form, living animal, etc.

Both common and scientific names are used in the text and in the index.

The first sections of the book deal with basic malacology -- "What is a Mollusk", evolution, reproduction, development, how the shell grows, ecology, observation and study of the living mollusk -- as well as giving a guide to collecting areas, cleaning and preserving, identification, nomenclature and the care of a shell collection.

The author, editor and illustrator are experts in their respective fields. Dr. Abbott holds the Pilsbry Chair of Malacology at the Academy of Natural Sciences of Philadelphia. Dr. Zim is an authority on science education and the originator of the Golden Field Guides. Mr. Sandstrom's work is already familiar to us through his illustrations

in "Seashells of the World".

We have never seen such a "small shell book" so packed with interesting and pertinent information. It is a definite aid to the advanced amateur as well as being a perfect book for the beginner.

. . . D. Raeihle

REVIEW:

A GUIDE FOR THE IDENTIFICATION OF THE SNAIL INTERMEDIATE HOSTS OF SCHISTOSOMIASIS IN THE AMERICAS

1968, Pan American Health Organization, 525 Twenty-third Street, N.w., Washington, D. C. 20037, Scientific Publication 1968, price $2.00.

This guide was prepared by a group of internationally famous malacologists: Dr. F. E. Barbosa, Pernambuco, Brazil; Dr. E. G. Berry, Ann Arbor, Michigan; Dr. Harold W. Harry, Houston, Texas; Dr. Bengt Hubendick, Göteborg, Sweden; Dr. E. A. Malek, New Orleans, Louisiana; and Dr. W. L. Paraense, Brasilia, Brazil.

It is a superb handbook for the identification of the fresh water planorbid snails of the genus Biomphalaria (=Australorbis, = Tropicorbis), some species of which are known vectors of the dreaded snail fever schistosomiasis in the New World. The shells as well as the more important soft parts are clearly described and illustrated with drawings which magnificently accentuate the specific differences -- something even the best photographs cannot always do.

The Planorbidae were never easy to determine specifically, but this intelligent combination of shell characteristics and soft parts make this booklet extremely useful for the malacologist and the epidomologist alike.

Of the seventeen species cited, only three are known vectors (glabrata Say, straminea Dunker, and tenagophila Orbigny). However, five are cited as potential hosts, one is of doubtful danger, and eight are innocent.

For each species the authors describe the shell and the soft parts of specific importance; they also give the geographical distribution, the preferred ecology, the genetics, the epidemological importance, and a brief citation of synonyms. There are also five appendices dealing with such matters as collection, preservation, and shipping of specimens; notes on laboratory rearing and infection of snails; and a brief description of techniques for making morphological studies. In addition there are important introductory chapters on malacological concepts, and a brief discussion of related freshwater genera.

The booklet is well printed with large type on excellent paper and its plastic spring binding makes for ready use in the field.

Except for giving Orbigny's date as 1935 (p. 36) we could find no typographical errors. All in all this is an excellent treatment of a difficult and extremely important subject and at the price is an exceptionally good buy.

. . . M. K. Jacobson

WHERE do you want to go for our annual field trip? Let us have your suggestions at the next meetings.........

BEACHES WHERE I HAVE GATHERED SHELLS

No. 5: WILSON'S PROMONTORY - VICTORIA

by Vilma Wicks

On Easter Monday of 1967 the day started out dull but pleasant. A five hour drive from the city, leaving behind Suburbia and follwing a favourite route, we were on a conducted tour to Wilson's Promontory, which is 150 miles from Melbourne and the most southern point of Australia, with 102,000 acres and a coast line of 80 miles on the western side.

It is a National Park of great importance, and a most rewarding experience would be to spend a week there. On entering the area, one is confronted with notices such as, "No dogs, cats or guns are allowed in this National Park". Every facility is available to day trippers, campers and holiday makers. Cottages are available for rent.

Of the beaches? There are plenty. They are delightful to behold and equal to Australia's loveliest. It is the western side which has been opened up with a good road all the way to Tidal River at Norman Bay. The beach here is of fine whitish sand, wide, and one mile long. Where the river comes down to the sea there are cliffs and rocks with lovely cool water and shady spots for resting awhile.

To reach the east coast is quite a trek, over mountains, through beautiful country viewed from the tops of granite peaks, down into the valleys with every kind of native flora to delight the "eye of the beholder". Animals, birds and all kinds of wild life are completely protected here. It is truly a national sanctuary.

In the sand dunes are many kitchen middens of long ago, complete with cutting stones used by the aboriginies to open the shells for their meals.

Shells are well represented on the "Prom". I have a fine pair of rather small *Cymatium* gathered by my son Graeme, who climbed over the mountains and there found this lovely pair on a rocky ledge. They have the appearance of a *spengleri* of great refinement.

There are attractive islands off from the shore. Norman Island, viewed from Norman Bay at Tidal River, looks like a huge sea animal; devoid of any plant life, it is smooth rock. Swimming is very safe as there is no undertow.

In "Marine Molluscs of Victoria", by Mcpherson and Gabriel, twenty bivalves and eighteen gastropods are reported from Wilson's Prom. One shell which always creates interest is a left handed one, and such is *Calliostoma* (*Sinator*) *incerta* (Reeve 1863). This left handed top shell is described in M. M. of V.: "Shell creamy white, occasionally pink tinted, small 3/4", interior iridescent, washed ashore at Wilson's Prom." With future opportunities many more species will be recorded. Conditions seem so congenial for their survival.

A book is soon to be published on the chronological and natural history of Wilson's Promontory National Park. The author, Mr. J. B. Garnet, is a founder and secretary of the Victorian National Parks Association who has been awarded the Australian National History Medallion for 1966 from 100 societies.

Having seen so little and yet so much in so short a time, we reluctantly

made our way to the coach which took us back to the place from where we started, with thought of another day -- a day when we must return to Tidal River on the "Prom.".

SOME SHELLS OF VICTORIA:

Murexsul brazieri (dredged)
Dentimitrella pulla calua
Austromitra tasmanica porphyria
Nevia spirata stricta Hedley
Austroginella muscaria Gabrieli
Epidiriona saxea Sowerby
Retusidae sulpta Gatliff & Gabr.
Pylichna arachis protumida Hed.
Tucetilla striatularis mayi Cotton = Glycymeris tenuicostata Reeve
Tucetona sordidus Tate
Modiolus pulex Lamarck
Gregariella barbartus Reeve
Camptonectes famigerata Iredale
Mesopeplum tasmanicum Adams & Angus
Limatula strangei Sowerby
Talabrica aurora micra
Venericardia bimaculata
Vimentum calva
Pratulum thetidis Hedley
Chioneryx cardioides
Gomphina undulosa australis
Myadora latilirata MacPherson
Eximiothracia modesta
Poneroplax albida
Meturoplax retrojecta
Heterozona subviridus
Notomella superba
Schizotrochus australis Hedley
Cellana solida
Chiazacmea flammea
Notoacmea alta
Calliostoma (Sinutor) incerta
Clanculus aloysii Tenison Woods
Bellastraea keseveni Iredale
Ataxocerithium serotinum
Seila crocea
Melanella augur tenisoni
Capulus violaceus zodiacus Hedley
Polinices conicus
Polinices aulacoglossa
Xenogalea labiata

(Previous articles by Mrs. Wicks are to be found in NOTES No§ 94, 99, 105, 112 and 127.)

MARY AND GEORGE KLINE TELL OF THEIR SULU EXPEDITION

Mary Kline opened the presentation at our November meeting with an explanation of how they happened to undertake this expedition to the Sulu Archipelago. It was really Dr. Tucker Abbott's idea, and it turned out to be the most unusual, bizarre, and strange expedition they had ever set out on. In the first place, all their plans based on previous experiences had to be discarded within twenty-four hours!

The Sulu Archipelago is a string of islands about six hundred miles south of Manila. The Klines were to learn that, though Sulu is politically a part of the Philippines, the people of the archipelago differ from those in the other islands in religion, culture, and ethnic ancestry.

When the Klines tried to make advance reservations in Jolo they encountered unexpected difficulties -- in fact, they had to leave it up to the New York Embassy where personnel, after trying vainly to persuade them to give up the idea, made arrangements with the Emigration Officer on Jolo. Before they left the United States for Manila (their first stop) they also found it extremely difficult to get any information about the island they proposed to spend almost a month on, as no one seemed to have heard of it! Finally they found someone who did and who immediately asked, "Why do you want to go to Sulu?" When told

that they wanted to investigate the possibility of getting shells and also to see the islands, he shook his head sadly and said, "But it is very difficult -- they might shoot you -- " and went on to give some very discouraging statistics as to why they should abandon the idea. However, since they were not to be discouraged, he did say that Mary would be all right since she looked American, but George looked like a Spaniard! It seems that the population is mostly Muslim and, since the islands were once under the rule of Spain, the Spaniards were still hated. The apprehension was again voiced in Manila, where their hotel taxi starter saw them off with a devout "If you must go to Sulu, may God go with you!"

From Manila they flew to Jolo. One of the passengers on the flight was a Catholic priest and Mary, fascinated by the large golden cross he wore, took an opportunity to scrutinize it. Four lovely pearls were set in the gold and it was overlaid with a slender cross of black coral -- a magnificent piece. She found then that he was looking at her quizzically; they struck up a conversation and Mary found that he came from her home, Philadelphia, and was now Bishop of an order of priests on Jolo and all through the islands. It was he who was later to provide transportation, by means of a small plane belonging to the Oblates, so that they could visit the other islands. They were fast friends by the time they reached Jolo.

George Kline then spoke: Their expedition to Sulu was for the Academy of Natural Sciences of Philadelphia and he told of the Academy's interest in the mollusks of the Sulu area. He also described the reception they received when arriving in Jolo -- how they were ushered into the Mayor's home for an audience, and the official insistence on a security guard to accompany them to nearby beaches. George said it was certainly strange to go shelling with a uniformed guard standing there with his rifle, watching you! But this was the way it had to be, otherwise no permission would be given.

Next George showed color slides of the islands and spoke of the shells which were so plentiful at low tide -- such as the cowries (Cypraea tigris and Cypraea vitellis) and Voluta vespertillio at Tabawan. In one area they got fifteen live Conus. He also showed a picture of a lovely spiny Murex which he said was quite plentiful.

The Klines had good luck using snorkels at low tide around the different islands, and after the native boys tried out these new-fangled gadgets of the Americans they were most enthusiastic!

Mr. Kline also spoke of the chief trade of the islands, smuggling! Shallow draft boats powered with 100HP motors were able to skim the waters and elude government vessels. The islanders enjoyed transistor radios and record players (all battery-driven) and were "up" on Smothers Brothers, the Beatles and modern music! Pearls were fairly plentiful but costly, as the Muslims prized them highly and the prices they brought -- well, you could do better on Fifth Avenue. He also showed a picture of a prosperous dealer who was building his shop. The clay columns of the building were inlaid with so many volutes, cowries, olivellas and other species that it would make a shell collector drool with envy!

In closing, George said he thought they had done rather well in spite of adverse weather.

. . . Angela Savino

NEW YORK SHELL CLUB

INC.

FOUNDED JAN. 1949

150th Issue

MARCH 1969

NEW YORK SHELL CLUB SHELL-SOCIAL
SUNDAY, APRIL 13th, 1969, at 2:00 PM*

THE PLACE: BROADWAY DANCE STUDIO (Phone: AS. 4-1503)
31-08 BROADWAY
ASTORIA, QUEENS, N. Y. (Directions below)

PROGRAM: AUCTION BARGAIN TABLE
RAFFLE DOOR PRIZE
COLOR FILM by RUSSELL JENSEN
REFRESHMENT HOUR SNACKS
BUFFET SUPPER COFFEE
HOMEMADE CAKES by OUR FAMOUS PASTRY CHEFS

Remember that your donations of shells and related items are needed to make the affair a success. No item too large or too small! Bring them in early so that they may be displayed -- *doors open at one o'clock; the meeting opens officially at two o'clock.

Veronica Johns is again donating a prize to be raffled. The winner will have a choice of either a package of the two new publications, "North American Seashells" by Abbott and "She Sells Sea Shells" by Johns or a copy of "The Scallop" edited by Cox, 1952 and now a collector's item. . . . Russell Jensen will show motion pictures in color of mollusks and their habitats -- a high spot on the program.

Cherita Stark is acting as "coordinator of cakes" and reports that our pastry chefs are again volunteering to bring their delectables. Perhaps some others of you would volunteer to bring snacks for the cocktail hour? (Yes, there will also be punch.) Get in touch with Mrs. Stark, evenings by telephone (212) 353-7894 or drop her a line: Mrs. Ernest H. Stark, 43-57 Union St., Flushing, New York 11355.

We hope to make the party self-supporting. For this reason it was voted to have a "cover charge". Members' contributions of $2.00 each at the door, and $3.00 each for guests, will partially cover the cost; we hope your support of the auction and sales will take care of the balance.

Although the business meeting will be kept to a minimum, it is time to think of our annual field trip and outing. Please bring your suggestions. Where would you like to go? Would you be interested in an overnight safari?

DIRECTIONS: The studio is on the 2nd floor of the building, corner of 31st St. and Broadway. From Manhattan, B.M.T. subway, ASTORIA line to the BROADWAY stop and you're right there! I.R.T. FLUSHING line to Queensboro Plaza, free transfer to B.M.T. ASTORIA line. From Jamaica, IND. subway to Roosevelt Ave., free transfer to I.R.T. Flushing line, transfer again to B.M.T. ASTORIA line at Queensboro Plaza. BY CAR: Queensboro Bridge to Northern Blvd. to 31st St., left on 31st St. (Under the El) to Broadway. Or Triboro Bridge to the first exit in Queens, turn right under the Elevated along 31st St. to Broadway. From Long Island, Grand Central Parkway to the last exit before the Triboro Bridge, a short distance along Astoria Blvd. to 31st St., turn left under the El to Broadway (about 6 blocks). Queens and Brooklyn residents should have no trouble. However, if there are any questions you may telephone us at NE. 9-2559 (Raeihle) or AS. 4-1503 (Jensen).

NEW YORK SHELL CLUB NOTES No. 150 March 1969 Page 1

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Recording Sec'y
ANGELA SAVINO

Historian
NICK KATSARAS

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Pk., NY 11040

Vice President
MART HULSWIT
680 West End Avenue
New York, N. Y. 10025

Treasurer
MATHILDE WEINGARTNER
17 Amelia Court
Staten Is., NY 10310

Librarian: Harold S. Feinberg, 2334 Tiebout Ave., Bronx, N.Y. 10458
Editor : Dorothy Raeihle, 7924 Ankener Ave., Elmhurst, N.Y. 11373
Assoc. Ed.: Anthony D'Attilio Special Ed.: M. K. Jacobson

These NOTES are distributed by mail to both full and corresponding members of the NEW YORK SHELL CLUB, INC. Dues: Full membership $3 per year, family memberships $1 each, corresponding membership $2.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the AMERICAN MUSEUM OF NATURAL HISTORY with the following exception:

> The meeting of APRIL 13, 1969 will be a social one held in the rooms of the BROADWAY DANCE STUDIO by courtesy of our member Dorothy Jensen. The studio is at 31-08 Broadway in Astoria, Queens. Details and directions on the enclosed sheet. Guests will be welcome.

TWENTY YEARS

The New York Shell Club is still celebrating its 20th anniversary. It started in January, when Dr. J. P. E. Morrison was our guest speaker on the 20th anniversary of our founding. Dr. Harald Rehder was "snowed out" in February, the anniversary of our first elections, but returned to be with us in March, as was Dr. Melbourne Carriker. Perhaps it is fitting also that the 150th issue of these NOTES, founded in the Club's first year, should coincide.

Serving as NYSC presidents during the 20 years have been: Morris K. Jacobson, Walter H. Jacobs, Anthony D'Attilio, Edward F. Cowles, Jr., George E. Jacobs, Harold S. Feinberg, William E. Old, George Raeihle, Mansfield C. Fuldner, and Milton Werner, Jr. The Club has grown steadily under their administration, and we thank them and the many additional members who have served in other capacities.

Next month we continue in the same spirit of celebration with a social meeting, where we all look forward to the opportunity of becoming better acquainted . . . .

AMERICAN MUSEUM CENTENNIAL

Founded in 1869 and dedicated by President Ulysses S. Grant, in this year of 1969 our American Museum of Natural History is celebrating its Centennial with new and special exhibits. The long awaited Hall of Ocean Life, a permanent exhibit, was opened on February 26th. Its dioramas and the replica of a 94 foot blue whale reflect the latest in technique and research. (We can't describe it here -- you must

see it!) The Museum looks back at its own history in a special exhibition for this year only: 100 Years of Wonder: The Story of the American Museum of Natural History - (Corner Gallery, second floor) - wherein antique engravings and historic photographs tell the story of the Museum's founding and first century, with its many expeditions, habitat groups, personalities and outstanding events. What better way to become acquainted with your museum?

ERRATA

Our January, 1969 is incomplete in that the name of one of our long-time members, Mr. John Q. Burch, was not included. Mr. Burch is very well known in conchological circles. He was for several years the editor and publisher of the old MINUTES of the Conchological Club of California, and is a former president of the American Malacological Union. We are proud to have him as a NYSC member and apologize for the omission. Please enter his name and address on your roster:

Mr. John Q. Burch, 1300 Mayfair Road, 61-L, Seal Beach, Calif. 90740

Also, the listing of Mr. W. J. Hamilton, Jr. was in error. The shell collector is Mrs. W. J. Hamilton, Jr. (Nellie), 615 Highland Avenue, Ithaca, New York 14850. Please make the correction on your roster.

THE MAGIC LURE OF SEA SHELLS

by Paul A. Zahl, illustrated with photographs by Victor R. Boswell, Jr., and by Dr. Zahl. An article in the March 1969 issue of NATIONAL GEOGRAPHIC, pp. 386-429. Recommended reading.

We noticed some changes in nomenclature (Even the latest books cannot keep up with these!): Argopecten irradians and Argopecten gibbus (p. 394) are our well known Aequipecten irradians and gibbus. To go back, in his review of Abbott's "American Seashells", 1954, M. K. Jacobson remarked on the new name of Aequipecten irradians for the mollusk currently known as Pecten irradians. It seems that Argopecten is a still older name and thus has been validated by the International Commission on Nomenclature. Other changes noted were Mitra mitra (=Mitra episcopalis) p. 395; Neverita duplicata (= Polinices duplicatus) on p. 399; Syrinx aruanus (=Megalotractus proboscidiferus) p.413.

Twelve of the photographs are of living specimens, among them Cowries, a Cone with its prey, the Giant Clam, and Coquinas. Also a close-up of a Strombus timidly peeking out of its shell (p. 395). The text on p. 408 describes it: "Strombus has a fearsome visage to begin with -- two bright unblinking eyes like yellow targets at the end of long stalks" then "a powerful foot bearing the operculum like a dagger." And so it might appear. (But observing captive specimens over a period of time we learn that Strombus' visage is really mild, non-aggressive -- and that it uses its operculum as a crutch to dig into the sand and push with, propelling the animal along with a rather jerky motion. The comparatively small foot is used mainly for clinging and grasping. .. Ed.)

The color plates are excellent, and are of shells from our own locality to those of the Indo-Pacific. Last but not least, there is a photo of Dr. Harald Rehder and Dr. Zahl in discussion at the Smithsonian.

dr

OFF-BOTTOM OYSTER SEED PRODUCTION IN UPPER CHESAPEAKE BAY

W. N. Shaw
Bureau of Commercial Fisheries
Biological Laboratory
Oxford, Maryland 21654

The future of the United States oyster fishery is of great concern to the Bureau of Commercial Fisheries. There is no question that our population will continue to increase, followed by greater demands for marine-produced foods. Unfortunately, as population increased over the past 65 years, from 76 million people in 1900 to 194 million people in 1965, production of oysters decreased over this same period, from approximately 160 million pounds to 55 million pounds of oyster meats. If we hope to feed future American generations, declines in seafood products must be reversed.

Countries like Japan, Korea, and Australia have adopted off-bottom methods of collecting and rearing oysters which has resulted in increased oyster production. In the United States almost all oysters are grown on the bottom. With hopes that we could also grow oysters in the third dimension and thus increase production, the Bureau of Commercial Fisheries Biological Laboratory at Oxford, Maryland, began in 1960 extensive studies on the off-bottom culture of oysters. One of these studies, the off-bottom production of seed oysters, will be described below.

During the months of June, July, and August oysters spawn in Upper Chesapeake Bay. Sexes are separate and fertilization takes place in the open waters. After two days, the egg develops into a pelagic larva which is carried by tides and currents for about two weeks. Then the larva attaches ("sets") to some hard object like an oyster shell, and there it remains until it dies or is caught by an oysterman.

Although oysters set in many areas in Chesapeake Bay, certain locations are better than others. After monitoring setting for several years in waters adjacent to the Oxford Laboratory, a number of sites were found that had high setting rates each year. These areas were selected for our off-bottom seed production experiments.

Special rafts were constructed to hold the shells. Each raft was made of two styrofoam logs (10" x 20" x 9') that were sandwiched between equal length 1" x 10" boards. Thirteen 2" x 4" boards were nailed in place about a foot apart on top of the logs. The rafts were moored in groups of five with a single 100 lb. mushroom anchor. Materials for each raft cost about $80.00. Oyster shells, from a local shucking house, were used as spat collectors. The shells were either drilled and strung on polypropylene rope, 30 shells to a string separated by 1" plastic tubing, or were placed in chicken-wire bags. The strings and bags of shells were suspended in the water from the rafts. Each raft supported about 50 bushels of shells.

During our early raft experiments, strings of shells suspended in June 1965 collected over 25 spat per shell by August. Every shell had caught an excellent set. Weekly monitoring in the area indicated that the major oyster setting had occurred in mid-June, or shortly after the shells had been suspended.

The experiment was repeated in 1966, and again the shells were suspended in early June. Only a few spat were found on the shells in August. Instead, the shells were covered with fouling organisms. Monitoring records for 1966 indicated that major setting occurred in mid-July. Thus setting took place a month later than it had in 1965. During this time fouling organisms settled on the shells, leaving no space for the oyster spat to settle later. The results of these experiments indicated that the timing of shell suspension in local waters is critical and the shells _must_ be placed in the water close to the time when oysters are setting.

In 1967 and 1968 the strings and bags of shells were placed on top of the rafts instead of immediately placing them in the water. Oyster setting was monitored daily at each site. When setting began to intensify, the shells were placed in the water. An excellent set occurred similar to that caught in 1965 and the problem of fouling had been eliminated by the correct timing of shell suspension.

Since the shells are off the bottom, the newly caught seed is out of reach from crawling predators such as drills or starfish. Unfortunately, in Chesapeake Bay a relatively unknown predator called the flatworm, _Stylochus ellipticus_, which like the oyster has a pelagic larva, sets on the suspended shells at the same time the oyster attaches. The flatworm immediately begins to feed on the young oyster spat and can inflict serious mortalities. Research is now underway to control flatworm predators.

Although we have encountered many unexpected problems in our development of raft oyster culture, there is no doubt that the technique will add significantly to shellfish production in this country, as it has in many other areas of the world. For over 30 years the Japanese have been catching their seed oysters on shells suspended off-bottom. Their production is so great that they have been able to ship thousands of bushels of seed oysters annually to the West Coast of the United States. The Chesapeake Bay region, like Japan, has a potential for producing enormous quantities of seed oysters on an annual basis. To fully utilize this potential we feel that off-bottom techniques, similar to those used in our studies, should be put into commercial operation.

(Note to above: Spawning and early forms of _Crassostrea virginica_ are illustrated on pp. 400-401 of the March, 1969, NATIONAL GEOGRAPHIC, "Magic Lure of Sea Shells".)

ILYANASSA OBSOLETA Say = NASSARIUS OBSOLETUS Say

The name of our common mud snail, _Nassarius obsoletus_ Say, appears in Abbott's new "Seashells of North America" as _Ilynassa obsoleta_ Say. This is an older name that for once we will not find hard to absorb, as it is in many of the older books we have occasion to consult.

Incidentally, we have long noticed that of the various _Nassarius_ we have collected here and in Florida, only _obsoleta_ was without the two caudal cirri on the posterior of the foot. However, its egg cases are extremely similar to those of _N. trivittatus_, showing a relationship. The _animals_ of _N. trivittatus_, _N. albus_ and _N. vibex_ are similar, but the egg cases of _albus_ and _vibex_ are _very_ different from those of _obsoleta_ and _trivittatus_.

THE ROLE OF PALEONTOLOGY IN MOLLUSCAN SYSTEMATICS

by Anthony D'Attilio

It would certainly be appropriate to quote from a work of one of the most distinguished zoologists and scientists of our times as the theme of my own remarks to follow. This excerpt is from an essay titled "Evolution and the History of Life" by George Gaylord Simpson.

> "Life may be studied in many different ways, and biology, the science of life, tends to split up into numerous specialties.. There are, nevertheless, general principles basic to any study of life and the most important of such principles is that life has a history; it has evolved. All fields of biology can profitably be examined from the historical point of view. All have (information) to contribute to the study of evolution and all are in turn illumined by knowledge of evolution."

The amateur shell collector faced with the increasing complexity of modern molluscan taxonomy is much puzzled, if not discouraged, at the whys and whereofs of this science. We can close our eyes to the history of the steps taken by molluscan taxonomy since the time of Linné to the age of molecular biology. However, we would scarcely realize what progress has been made in taxonomy from its inception in the 18th century to our own times. It is to be remembered that Darwinian evolution was not promulgated until the mid 19th century, almost a hundred years after the publication of the "Systema Naturae". The full impact of evolutionary concepts is only now being felt in ever increasing force in the problems faced as we delve into the meaning of the species concept. This especially is relevant in the study of Mollusca, a comparatively neglected phylum of the animal world.

The mollusks in one form or another are of very ancient lineage (circa 600 million years --Ed.). They have been witness to one great geological age following another and although evolution has taken its toll of uncounted numbers, more have evolved to fill in the gaps. To quote once more from Simpson's essays:

> "Extinction is a continuous and normal part of faunal evolution. It has gone on constantly throughout the history of life as environments changed and as some groups ecologically replaced others. Incomparably more lineages of all geological ages have become extinct than have survived to the present."

The Recent mollusks, i. e.: those alive today, have been estimated to number at least 100,000 species. Can those long bygone fossils serve to enlarge our understanding of the Recent species? The answer is, obviously, "Yes". Although some groups on the genus or family level have become extinct, their descendants, modified more or less by evolution, are often to be found among the Recent species. We may also add the observation that fossils which have no direct descendants are still of value, directly or indirectly furnishing clues to the evolution of Recent species or species groups.

As an example we may cite the family Cypraeidae. Some workers in this group have come under criticism because they split the family into a large number of families, subfamilies and genera. Collectors are not a little confused by all this "splitting" of their favorite cowry shells. However, if we compare the Recent species of cowries

with the fossil species we find that morphological characters of superspecific rank were well defined during much of the Cenozoic period.

The Cenozoic begins about 65 million years ago and is the period during which the great expansion of mammals took place. During the early part of these 65 million years, many of the molluscan orders and families, as we know them now, also came on the scene. The early portion of the Cenozoic, about 40 million years, includes the earliest, the Paleocene, followed by the Eocene and then the Oligocene. The last 25 million years include in their order of age the Miocene, the Pliocene, the Pleistocene and the Recent.

Of completely extinct genera in two families of "*Cypraea*" the following may be noted: *Paleocypraea* from the Paleocene; *Archicypraea* - Eocene; *Mandolina* - Oligocene; *Megalocypraea* - Eocene; *Gisorta* - Paleocene; *Vicentia* - Eocene.

The family Bernayidae, which began in the Oligocene and was abundant in the Eocene, still has a few Recent species such as *Bernaya teulerei* Cazenavette 1846 and *Bernaya fultoni* Sowerby 1903. The same is true of the following: *Barycypraea* Oligocene to Recent; *Zoila* Miocene, to Recent *Zoila friendi* Gray 1831, *Zoila thersites* Gaskoin 1849; *Siphocypraea* Miocene, *Siphocypraea problematica* Heilprin 1887 in the Pliocene, *Siphocypraea mus* Linné 1758 in the Recent.

The subfamily Cypraeinae contains the extinct genus *Jousseaumea*, *Luria* Miocene, *Basilitrona* Miocene to Recent *Basilitrona isabella* Linné 1758 and *B. pulchra* Gray 1824. In the family Cypraeidae may be mentioned the following genera: *Chelycypraea* is known as Recent only; *Trona* Oligocene to Recent *Trona stercoraria* Linné 1758; *Macrocypraea* Miocene to Recent *Macrocypraea cervus* Linné 1771 and *M. zebra* L. 1758.

Although this does not complete the family group, enough has been cited to show the evolutionary complexity in the fossil record and how this is reflected among the Recent fauna. It would appear that since these several genera of *Cypraea* were distinct so long ago, it is an argument for breaking up the present single genus *Cypraea* into the ancient genera that still exist today.

I am indebted to a collection of essays by George Gaylord Simpson titled "The Geography of Evolution" published 1965. The ages cited for various Cypraeid families or genera are from Wilhelm Wenz, 1938 in "Handbuch der Paläozoologie".

FOSSIL SHELLS of great beauty and interest have been taken in recent years from the Caloosahatchee and other formations in south Florida, the formations ranging from Miocene to Pleistocene. The *Siphocypraea problematica* mentioned above is found there. Another most interesting species is *Scaphella floridana* (ancestor of *S. junonia*) which in turn has an ancestor in the Virginia deposits. Several species are extinct; many forms are unchanged; a surprising number of specimens are found with their original gloss and traces of color. The Miocene deposits have generally been less accessible to the collector, but many Floridians kept informed on the whereabouts of current diggings and dredgings for flood control canals and salvaged a great number of specimens before the sites were covered. It is interesting to display these fossil shells next their modern counterparts or descendants.

dr

Extracts from
THE INFLUENCE OF MARINE CURRENTS ON THE MOLLUSCAN FAUNA OF URUGUAY
by Omar E. Sicardi

This article discusses the more important currents of the South Atlantic which directly influence the molluscan fauna of Uruguay. All have their origin in the important cold current which circumvents the Antarctic continent, moving from west to east. From this main current a long arm extends upwards and, on reaching the vortex formed by South America, divides into three branches. One of these branches heads northward along the Pacific coast, reaches Peru and takes the name Humboldt Current, or Peru Current. The second branch goes along the Atlantic coast of South America and, after passing the Argentinian coast, reaches to the River Plata and a little beyond. This is called the Falkland or Malvinas Current. The third and most important branch crosses the South Atlantic until it reaches the western coast of Africa, where it becomes the Benguela Current. When it reaches the Equatorial Zone it turns to the west, heading for the American coast (Brazil) where it is known as the South Atlantic Equatorial Current.

When this current reaches the Brazilian coast, after having combined with the North Atlantic Equatorial Current, it divides into two branches, one going to the Caribbean and Gulf of Mexico and the other to the south, bordering the Brazilian coast and so named the Brazil Current. It reaches its southernmost end approximately at the 45th parallel.

As we can see, the Malvinas Current and the Brazil Current meet at a point situated near the mouth of the Plata River, thus favoring our molluscan fauna with their thermal and dynamic influences. This fact gives us the satisfaction of possessing a larger number of species than seems possible considering our geographical location and the small extent of our longitudinal coastline. This is especially surprising when one considers the stronly negative influence of the two major rivers, the Paraná and the Uruguay, upon our salt water species. These rivers, on forming the voluminous River Plata, feed a huge amount of fresh water into the Atlantic, undoubtedly modifying the marine environment of the area.

The warm Brazil Current borders South America, reaches our Uruguayan coast, then swerves off more or less along the 45th parallel towards the African continent, slipping by on top of the colder water from the south. Thus the waters that reach us are not those of the cold Malvinas Current.

Up to now we have explained the general theory of the marine dynamics of our area, but the works of De Buen, Parodiz, and Balech, scientists who have studied the oceanography of the South American coast from the 30th to the 50th parallels south, illustrate for us in greater detail the oceanic movements of this part of the Atlantic. Parodiz, agreeing with Le Danois, explains the faunal distribution of the area by applying Le Danois' theory of marine transgressions. This theory predicates a periodic movement in the Atlantic waters, of the warm Brazil Current in the summer months, and a recession of this oceanic mass during the opposite season, when the cold waters of the Antarctic pre-

dominate. These movements always manifest themselves, however, while obeying the rule that waters of different salinity and density never mix; that is, in this particular case, the cold Antarctic waters move northwards and sink below the warm waters of the Brazil Current by virtue of their greater weight. Parodiz shows that in addition to the regular seasonal cycles other cycles manifest themselves, exerting influences which show a different intensity than the transgression movements and having periods of 111, 18, 9, and 4½ years.

As Carson states, these regular cycles that influence the dynamics of the sea occasionally modify the thermal-chemical conditions of coastal environments. This would explain the mysterious appearance and disappearance on our beaches of those species whose conditions for life are particularly narrow.

There is also no doubt that the inexplicable distribution of certain species of our mollusks is due to past alterations undergone by the ocean's dynamics as a result of changes in the contours of the continents during earlier advances and recessions of the ocean.

Balech disagrees with LeDanois. He concludes, on the basis of his studies, that the two currents mentioned (Brazil and Malvinas) are constant, permanent, and unaltering. To the first he assigns clear limits well outside the continental shelf, moving away from South America in an easterly direction at the 47th parallel. To the second he attributes a permanent influence above the continental shelf up to the same 47th parallel, extending northward between the coast and the warm Brazil Current but at a greater depth and in an unstable manner. He further assigns warm waters to the area between the latitudes 34° to 39° during six or more months of the year, for the area between the 39th and 43rd parallels from three to six months, and for the area between the 43rd and 47th parallels for less than three months a year.

De Buen, who studied the oceanography of our coast in particular, believes that in this area of the Atlantic, far removed from the influence of the irregularities of the coastline, all of the ocean mass moves in unison, sliding northward in January or February and later southward in July and August, with a slow, hardly perceptible, but very powerful movement.

In conclusion, the influence of both currents is noticeable when we observe the marked differences in the quality of species between those on the east or west side of the principal rocky protuberances which extend into the ocean on our Atlantic coast.

To facilitate the study of systematics, the distinct littoral and deeper continental shelf faunas are grouped into faunal zones. These areas are called faunal provinces. Naturally, the limits of distribution of the various faunas do not conform strictly in every case to the borders of these provinces; often many of the species attributed to one province mingle quite thoroughly with those of the neighboring province.

Following Woodward and others who have studied the subject, we reach the conclusion that four provinces can be established for South America; three of them having well defined malacological faunas, and a fourth mostly influenced by the adjoining ones.

They are: The Peruvian Province, which begins at the northwest of the continent and runs down the coast to Peru and northern Chile (approximately 32° S. Latitude); the Magallanic Province, which runs south from this latitude and passes through Tierra del Fuego, the Malvinas (Falkland Islands), and along the coast of Argentina (approximately to the 43rd parallel). The Caribbean or Antilles Province reaches from Cape Hatteras in North America through the Caribbean and along the coast of Brazil as far as the State of Santa Caterina (Latitude 28° S.). The Argentine or Patagonian Province lies between these last two, and has a fauna dominated by the neighboring provinces. It extends from the 43° S. Latitude to the 28° S. Latitude: Our seacoast is situated in the center of this province.

If one examines the ranges of these provinces, one notices that they correspond perfectly with the areas affected by the currents mentioned before. The Magallanic Province corresponds exactly to the current that leaves the Antarctic and travels up both coasts as the Humboldt and Malvinas Currents. The Caribbean or Antillean Province adheres for the most part to the warm Brazil Current (in its southern half) and the Argentine Province corresponds exactly to the zone where the two currents meet, creating an environment that varies thermally and chemically with the cycles of ocean dynamics.

It is because of this that in this province, in which we have the pleasure of living, it is possible to find species of such diverse origins living together. However, some species which are unable to adapt their biological cycles to these seasonal variations do not flourish, and succumb because of the lack of stability in the environment.

The Uruguayan molluscan fauna can be divided into two groups. The first are those species whose dispersion can be attributed with certainty to a particular marine current, and the second made up of those about which there is some doubt in this respect. Nevertheless, based on various factors, such as abundance of population within the limits of dispersion, the geographical orientation at the habitats within our waters, the previously known limits of the genera as regards their thermal tolerance, etc., we have decided to assign them to one or the other of the currents exerting their influence on our marine coast.

SPECIES ATTRIBUTED TO THE INFLUENCE OF THE MALVINAS CURRENT

Chaetopleura isabellei d'Orb.
" tehuelcha d'Orb.
Photinula caerulescens K.&Brod.
Tectonatica impervia Philippi
Fusitriton magellanicum Gmel.
Epitonium magellanicum Phil.
Buccinanops globulosum Kiener
Fusus acanthodes Watson
Trophon laciniatus Martyn
Adelomelon ancilla Solander
Odontocymbiola magallanica Gmel.
Adelomelon beckii Broderip
Drillia patagonica d'Orb.
Pachysiphonaria lessoni Blainv.
Malletia cumingi Hanley
Tyndaria striata King
Aulacomya ater Molina
Lithophaga patagonica d'Orb.
Chlamys patriae Doello Jurado
Limatula pygmaea Philippi
Gaimardia trapezina Lamarck
Ameghinomya antiqua King
Samarangia exalbida Chemnitz
Clausinella gayi Hupé
Petricolaria patagonica d'Orb.
Hiatella solida Sowerby
Panope abbreviata Val.
Barnea lamellosa d'Orb.
Pandora braziliensis Sowerby
Octopus tehuelchus d'Orb.
Paraledone charcoti Joubin
Argonauta nodosa Solander

SPECIES ATTRIBUTED TO THE INFLUENCE OF THE BRAZIL CURRENT

Acmaea subrugosa d'Orbigny
Halistylus columna Dall
Littorina zic zac Gmelin
Janthina janthina Linné
" globosa Swainson
" exigua Lamarck
Tonna galea brasiliana Mörch
Cymatium parthenopeum von Salis
Epitonium albidum d'Orbigny
Dorsanum moniliferum Val.
Thais haemastoma Linné
" " floridana Conrad
Anachis avara Say
" obesa C. B. Adams
" isabellei d'Orbigny
Phalium granulatum Born
Zidona dufresnei Donovan
Olivancillaria urceus Röding
Mitra larranagai Carcelles
Ancilla dimidiata Sowerby
Marginella largilleri Kiener
" prunum Gmelin
Acteon punctostriatus C.B.Adams
Cylichnella bidentata d'Orb.
Tornatina candei d'Orbigny
Retusa caelata Busch
Marionia cucullata Gould
Aplysia brasiliana Rang
Nucula semiornata d'Orb.
" uruguayensis E.A.Smith
Nuculana electa A. Adams
Pododesmus rudis Broderip

Noetia bisulcata Lamarck
Anadara brasiliana Lamarck
Glycymeris longior Sowerby
Mytella charruana d'Orbigny
Perna perna Linné
Plicatula spondyloidea Meuschen
Chlamys tehuelchus d'Orbigny
Ostrea equestris Say
Atrina seminuda Lamarck
Diplodonta vilardoboana d'Orbigny
" semiaspera Philippi
Tellina exilis Lamarck
Macoma brevifrons Say
Semele proficua Pulteney
Abra lioica Dall
Strigilla rombergi Mörch
Mesodesma mactroides Deshayes
Donax hanleyanus Philippi
Anatina plicatella Say
Tivela ventricosa Gray
Amiantis purpurata Lamarck
Petricola pholadiformis Lamarck
Trachycardium muricatum Linné
Tagelus plebeius Solander
Corbula caribaea d'Orbigny
Cyrtopleura lanceolata d'Orbigny
Pholas campechiensis Gmelin
Loligo brasiliensis Blainville
Loliguncula brevis Blainville
Ommatostrephes bartramii Lesueur
Spirula spirula Linné

Attributed to the Brazil Current, but with some doubts:

Diodora patagonica d'Orbigny
Crepidula aculeata Gmelin
" protea d'Orbigny

Terebra gemmulata Kiener
Pitar rostratum Koch

SPECIES INDIGENOUS TO THE ARGENTINE PROVINCE

Fissurellidea hiantula Lamarck
Lucapinella henseli Martens
Tegula patagonica d'Orbigny
Calliostoma jucundum Gould
" coppingeri E.A.Smith
" militaris Ihering
Natica limbata d'Orbigny
Cymatium felipponei Ihering
Epitonium tenuistriata d'Orb.
" georgettina Kiener
Turbonilla dispar Pilsbry
" uruguayensis Pilsbry
Latirus frenguelli Carcelles
Buccinanops gradatum Deshayes
" uruguayensis Pilsbry

Buccinanops duartei Klappenbach
" deformis King
Ocenebra cala Pilsbry
Drupa necocheana Pilsbry
Urosalpinx rushi Pilsbry
Phalium iheringi Carcelles
Adelomelon brasiliana Lamarck
" riosi Clench & Turner
Odontocymbiola pescalia Cl. & Turn.
Olivancillaria uretai Klappenbach
" carcellesi Klappenbach
" teaguei Klappenbach
" vesica auricularia Lamarck
" deshayesiana Duclos
" contortuplicata Reeve

Olivella puelcha Duclos
" tehuelcha Duclos
" formicacorsii Klapp.
Marginella patagonica Martens
Conus carcellesi Martyn
Clathurella aguayoi Carcelles
Nucula puelcha d'Orbigny
Nuculana patagonica d'Orbigny
Pododesmus leloiri Carcelles
Brachidontes rodriguezi d'Orb.
" darwinianus mulleri Dkr.
Mytilus edulis platensis d'Orb.
Musculus viator d'Orbigny
Chlamys felipponei Dall
Ostrea puelchana d'Orbigny
Cardita plata Ihering
Crassinella maldonadoensis Pilsbry
Tellina gibber Ihering
" petitiana d'Orbigny
Macoma uruguayensis E. A. Smith
Semele casali Doello Jurado
Abra uruguayensis Pilsbry
Mactra isabelleana d'Orbigny
Mactra marplatensis Doello Jurado
Sunetta americana Doello Jurado
Tivela isabelleana d'Orbigny
Corbula lyoni Pilsbry
" patagonica d'Orbigny
Solen tehuelchus Philippi
Thracia rushi Pilsbry
Periploma ovata d'Orbigny
Lyonsia patagonica d'Orbigny

From: COMUNICACIONES de la Sociedad Malacológica del Uruguay, Vol. II, No. 12, pp. 49-60. By permission of the author and publisher. Complete text includes range of each species listed and extensive bibliography (consult NYSC Library). Translations by Mart Hulswit and M. Karl Jacobson. Edited by M. Karl Jacobson. Suggested reference: map in "Manual of the Mollusca" by Woodward, or National Geographic Society Atlas Plate 62, June 1968.

THE SURF CLAM FISHERY

by John W. Ropes
Bureau of Commercial Fisheries
Biological Laboratory
Oxford, Maryland 21654

Several marine bivalve mollusks inhabit the Northwestern Atlantic continental shelf and have been used for food since colonial days. Five species are harvested by important fisheries: the oyster (*Crassostrea virginica*), the surf clam (*Spisula solidissima*), the sea scallop (*Placopecten magellanicus*), the northern hard-shell clam or quahog (*Mercenaria mercenaria*), and the soft-shell clam (*Mya arenaria*). Minor fisheries exist for: the southern hard-shell clam (*Mercenaria campechiensis*), the ocean quahog (*Arctica islandica*), the bay scallop (*Aequipecten irradians*), the calico scallop (*Aequipecten gibbus*), the blue mussel (*Mytilus edulis*), the sun ray clam (*Macrocallista nimbosa*), and the razor clam (*Ensis directus*). Some of these may become commercially important in the future.

Surf clams are our most recent east coast shellfish of major importance; from a low of 1.2 million pounds taken in 1944, the fishery increased the total pounds of meats landed almost 38-fold in the past two and one-half decades. In 1966 and 1967, the annual landings reached a peak of 45 million pounds. As shown by the average annual landings during the 5-year period 1961-65, surf clams are second only to oysters (Table 1).

Surf clams are not sold in-the-shell, as are oysters and quahogs, but undergo an extensive treatment in modern, hygienic plants to obtain only the muscle tissues which are used to make chowders, minced clams,

and other delicious clam products. Thus, the landed dollar values in Table 1 are those paid to the fishermen and are not those of the final processed product. The clams are usually completely processed within 24 hours after they are landed.

Table 1. Average annual landings of five major east coast molluscan shellfish, 1961-1965.

	Pounds*	Dollars*
Oyster	48,424	22,206
Surf Clam	35,835	2,454
Sea Scallop	21,804	10,422
Hard-shell Clam	14,095	8,422
Soft-shell Clam	9,770	3,296

* In thousands

Rapid growth of the fishery has been limited to the middle Atlantic coast where surf clams are most abundant off Long Island, New Jersey, and the Delmarva Peninsula. Nevertheless, surf clams have an extensive north-south range from Nova Scotia to North Carolina. The clams inhabit sandy bottom from shore to depths of at least 250 feet; fishermen, however, rarely operate at depths greater than 150 feet. Spisula solidissima is ideal for commercial use because it is the largest bivalve found in the coastal waters of the Eastern U. S. -- some shells are 8½ inches long. The fishery catches mostly clams five to seven inches long and the whole meats may weigh as much as one pound per clam.

An increased demand for clam products after World War II and a decline in the New England soft-shell clam fishery during the 1940's were important factors which aided in the development of the surf clam fishery. More important, however, the Long Island based industry developed a hydraulic dredge to catch the clams and methods to process the clam meats in late 1945; annual landings from offshore Long Island increased 4-fold in the next 5 years. More productive beds than those of Long Island were discovered in 1950 off New Jersey, where the fishery is now centered. The principal docks are at Pt. Pleasant, Wildwood, and Cape May -- from 92 to 96 percent of the landings have come across these docks in the past three years.

The fishing fleet of 65- to 90-foot long vessels are of various designs: shrimp trawlers, small inshore draggers, oyster dredge vessels, and surplus military vessels. Surf clam dredges weigh about one ton, although larger and smaller are used. Briefly, the dredge has a forward cage of steel slats to hold the hydraulic jet system and digging knife; another cage follows with a ring-bag trailing aft. In operation, water is pumped through a 6-inch diameter, rubber hose from the deck of the vessel to the jets, loosening the sand ahead of the knife. A steel cable is used to lower and raise the dredge and a polypropylene line is used during the actual tow. After towing the dredge for about 20 minutes, it is hauled aboard for unloading. The catches are almost exclusively surf clams and their empty shells, but crabs, sea cucumbers, and other bottom organisms are often taken. After about an 8-hour period on the fishing grounds the vessels return to port with about 225 bushels of clams on deck. Since the beds may be two hours away from port, 12-hour trips are not uncommon.

In the late 1950's, the surf clam industry became concerned about the long-term future of the clam populations. They suspected that effort to catch clams had increased steadily in the form of improvements and enlargement of the dredges, which were supplied with more powerful hydraulic systems and were being towed by more powerful vessels. At the request of the industry, studies are in progress on the biology of the surf clam, and its distribution and abundance at sea, by scientists of the United States Bureau of Commercial Fisheries' Biological Laboratory at Oxford, Maryland. The results of some of the studies can now be briefly summarized.

From a microscopic examination of the reproductive organs of surf clams from the New Jersey fishing area during 1962-65, it was concluded that the clams spawned twice in each of the first three years. The two spawnings annually were characterized by a major mid-year and a minor late-year release of sex products. A delayed single spawning in 1965 was related to colder environmental temperatures. This study is fundamental to understanding larval occurrence and juvenile settlement.

Preliminary to observing the growth of surf clams, a marking technique had to be developed. Notching the shell margins and attaching a conspicuous tape to the shells with an adhesive have been the most successful of the techniques tested. From marking and other techniques juvenile clam growth was observed for a period of 3 years. The average growth was: 1 year, 45 mm; 2 years, 69 mm; and 3 years, 91 mm. Although 4-year-old clams would be expected to average about 110 mm long, based on the above data, only a few would be taken by the fishery, since mostly those between 105-180 mm are caught. Thus, clams recruited to the fishery stocks are 5 to 6 years old.

Biological cruises have been conducted in an area of about 25,000 square miles to sample the surf clam populations from Montauk Point, New York, to Cape Hatteras, North Carolina. Data from the cruises are used to outline areas of clam abundance, bottom composition, and associated organisms. Surf clams were most abundant in the area of the present fishery of New Jersey. Significant numbers of clams were found off the Delmarva Peninsula area and to a lesser extent off Long Island, New York. No commercial quantities of surf clams inhabited the area south of the Chesapeake Bay to Cape Hatteras, North Carolina.

From:

"MOLLUSKS AND WILDLIFE"

"If you have ever cleaned a wild duck, you may have discovered what it had been eating. To mallard, black ducks, teal, and other species, mollusks are an important food, particularly when other food is not abundant.

Probably the birds most dependent on mollusks for food are the shorebirds that you see running along at the edge of the water busily gleaning meals from the mud or sand; these birds eat many insects, too. Birds of the shore often show surprising skill in making a hard-shell clam or oyster open its shell so that the soft interior may be removed. Gulls will carry clams high into the air, drop them, then descend and are on the spot when the shells break open as they hit the ground."

Cornell Rural School Leaflet, Vol. 42, No. 4
Prepared & supervised by E. Laurence Palmer.

NYSC NOTES NUMBER 151 APRIL 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MAY 11th, 1969, at 2:00 P. M.

PROGRAM: SHELLING AT THE AUGUST FULL MOON on the GREAT BARRIER REEF OF AUSTRALIA, by
Waverley and Francis Harmon

NEW YORK HARBOR, by
Mathilde P. Weingartner

THE SHELL-SOCIAL April 13th was declared "the best ever". The auction was brisk; our members were generous first in donating shells, second in bidding on them. Very many of the data slips were reminders of presentations at meetings and of other trips by our members -- "Queensland, leg. Harmon", "Bermuda, leg. R. Jensen", "St. Croix, leg. Steele", "Portugal, leg. Taxson" etc., etc. Russell Jensen's color film of living mollusks was terrific -- no verbal description is adequate to describe the action of these marine creatures. The food was delicious, the cakes elegant, the company excellent. And because of the "cover charge" the financing was not a worry to our treasurer.

After the party we found a small purse containing a key. It will be brought to the May meeting for return to its owner.

A CORRECTION:

In part three of the article MOLLUSKS AND LITERATURE which appeared in NOTES 148, January, 1969, page 3, a number of lines were inadvertently omitted. The quotation on page 3, 3rd paragraph, of Baron Cuvier (who incidentally lived in the 19th and not the 18th century) should have read as follows:

> "The Mollusca in general appear to be animals that are but slightly developed, possessed of but little industry and which are only preserved by their fecundity and their tenacity of life."

The page should then continue as follows:

> We can all agree as to their longevity and fecundity but we question their slight development and chiefly their implied laziness. S. P. Woodward, the author of the most popular work on mollusks in the last century, felt his Victorian moral sensibilities offended by a nasty habit that all pulmonates have in common:

(The rest of the page, including the quotation beginning on line 17, has been correctly printed.)

. . . M. K. Jacobson

OUR ANNUAL FIELD TRIP AND OUTING is customarily held in June. Thus it is important that plans should be completed at our May meeting. Please give your ideas, your suggestions, to President Werner -- in advance of the meeting, if possible, so that discussion may proceed smoothly.

THE AMERICAN MALACOLOGICAL UNION, INC.
35th ANNUAL MEETING AT MARINETTE, WISCONSIN, JULY 21-25,'69

A million people annually leave the hot crowded cities to the south to enjoy vacations in northern Wisconsin; we urge you to come and find out why....We offer superb food, comfortable housing, excellent auditorium facilities, boating, canoeing and fishing plus unexcelled land and freshwater collecting....

And it is in this area that the A.M.U. will meet this year, an area ideally suited for those who would like to make the meeting a part of their vacation trip. Marinette is 300 miles north of Chicago on a four-lane divided highway (US 41); it is served by North Central Airlines with two daily flights from Chicago and Detroit, by train from Chicago, and by Greyhound bus. All flights, train and buses will be met on Sunday, July 20th and on Monday, July 21st.

Housing of the delegates will be provided by the Silver Dome Motel, Shore Drive, Marinette, Wisconsin 54143. It is a modern resort occupying an isolated area at water's edge (Green Bay on Lake Michigan). A car is essential to reach other area motels and the beautiful municipal campground.

Registration (fee: $5.00) and all lecture sessions will be held in the ultra-modern Science Hall of the University of Wisconsin-Green Bay, whose campus adjoins the motel grounds.

Added charges: Banquet, $5.00; Box lunch for field trip, $1.50.

Please note: Motel reservations should be made early; they cannot be guaranteed after May 30th.

Those of you planning to attend should send a card to Mrs. Teskey advising her 1: how many in your party, 2: how you are traveling and if you wish to be met, the time of arrival. Address: Mrs. Margaret C. Teskey, Route 2, Box 318, Marinette, Wisconsin 54143.

CALL FOR PAPERS: Persons desiring to contribute to the program are requested to send title of paper, time required, equipment needed, to AMU President, Dr. Joseph Rosewater, U. S. National Museum, Washington, D. C. 20560 NOT LATER THAN MAY 30, 1969. An earlier return will be much appreciated.

REMEMBER -- You do not have to be a member of the American Malacological Union or of a Shell Club to attend the meeting.

THE AMERICAN LITTORAL SOCIETY of Sandy Hook, Highlands, New Jersey, will hold its second symposium, "Your Future in the Sea - 1969", on Saturday, May 24th, 1969, at Hunter College. Subjects will include fish behavior, diving techniques, underwater photography, conservation, striped bass habits, fish tagging, other sea subjects. Two sessions, both held in the facilities at 69th Street off Park Avenue, 12:00 noon until 5:00 PM; 8:00 PM to 11 PM. Donation: $5.00 for both afternoon and evening programs, $3.00 for afternoon only. Those interested should write for their tickets to the chairman, Mrs. June Kieser, American Littoral Society Symposium, 33-38 164th St., Flushing, New York 11358. It would be appreciated if you would enclose a self-addressed, stamped envelope with your pre-paid order for tickets.

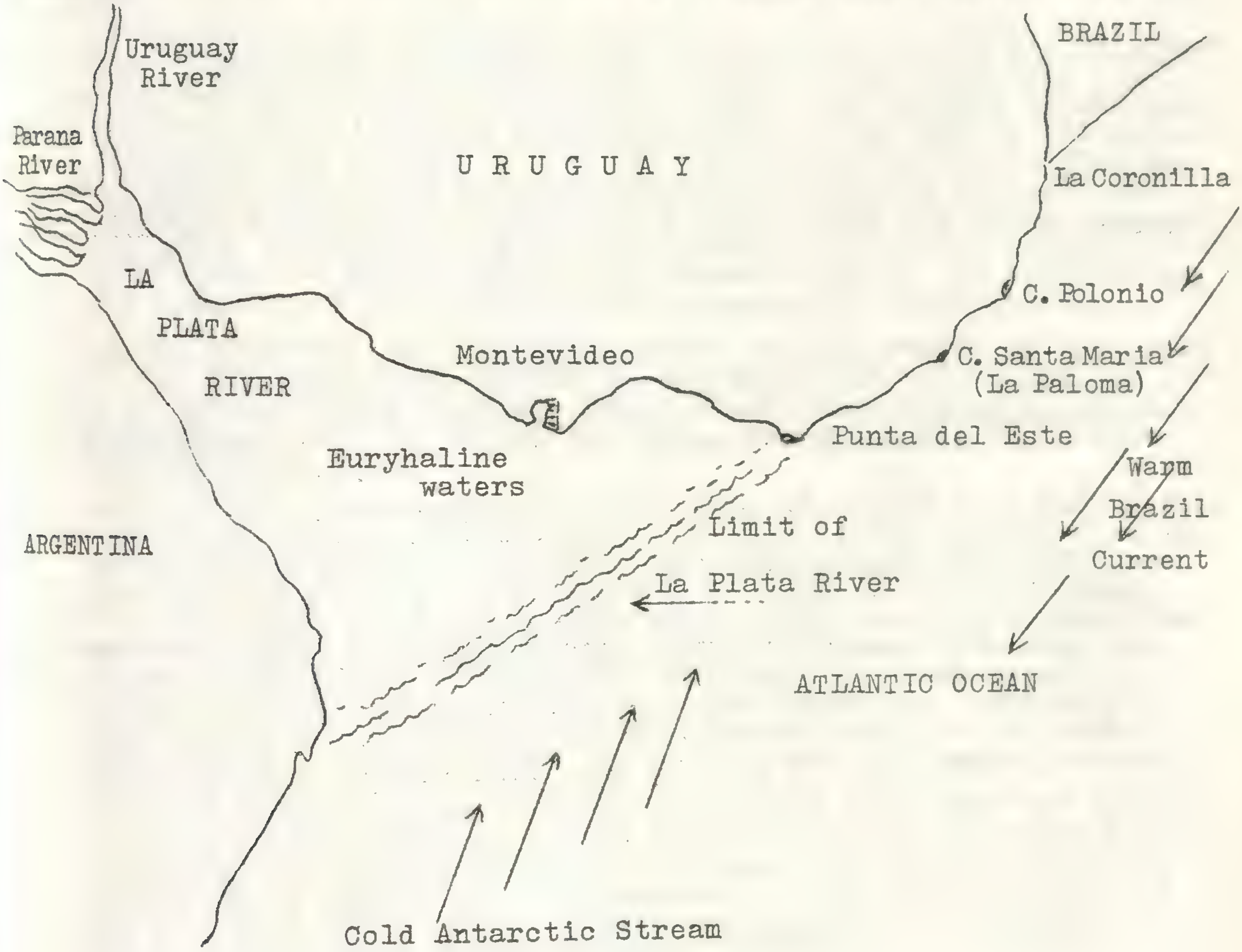
THE MARINE SHELLING OF URUGUAY

by Omar E. Sicardi

The oceanic coast of Uruguay is short, only about 200 miles; the rest of our coast is under the influence of the big Rio de la Plata. If you will refer to the accompanying map you may understand how meagre are our possibilities to obtain marine shells in good quantity and diversity of species.

As you see, we have only three important rocky points or capes on the Atlantic Ocean. The very first is situated at a point which is considered to be the limit between the La Plata River and the ocean; it is named Punta del Este. In this area we find most commonly Mactra, Brachydontes, Mytilus, Donax. Donax hanleyus is very common and people use it for food, calling it "berberecho", "cockle".

Next to the east is Cabo Santa Maria where is situated La Paloma -- the best collecting place of our coast. Common here is Glycymeris longior and Diplodonta vilardeboana; very common is Mesodesma mactroides which is used both as food and as fishing bait. After a storm



we might find *Urosalpinx rushii* or *Tivela*; here we have collected the beautiful *Amiantis purpurata*. Buried in the sand at the tide mark may be live *Buccinanops uruguayensis* and the *Olivancillaria*. The *Olivancillaria* come in with the surf and quickly bury in the sand -- when collecting them we must be fast with our hands because as soon as they touch the sand they disappear! *Siphonaria lessoni* lives on nearby rocks.

Still more to the east is Cabo Polonio, which is made up of several rocky points or capes. At this place there is a lantern, several fishermen's huts, and an Official Station where is situated one of the "loberias" (seawolf hunting place). There is no road to Cabo Polonio which may be travelled by car; the only way to get to this place is with a jeep or horse cart, or on foot, and one needs more time than a weekend to visit there from Montevideo. Besides, the shells obtainable at Cabo Polonio are less abundant and nearly the same that we can get at La Paloma; perhaps, if one is lucky, one may get some of the rare *Clathrurella aguayoi* or other small gastropod that has reached here with the influence of the warm Brazilian sea current.

Our beaches are long, very long, with no protection from the Atlantic waves, so they shelve off deeply (in general, a few feet from the shoreline you are in neck-deep water). Also, the rolling waters are very dangerous and if one is without caution it is easy to get drowned. Looking at the map it is easy to notice that we do not have bays or small gulfs that would help to form quiet habitats suitable for those species which need comparatively calm waters and muddy corners to establish a population. Also, our tides are scarcely noticeable; the normal tidal range is only a few inches, thus we are deprived of the rich tidal pools that are so often present in other places.

Summing up, to obtain most of our species we must depend on the kindness of the sea swells and of the storms that wash ashore species that live comparatively nearby. Others, like some *Olivancillarias* and *Buccinanops*, come in to prey on *Donax* and *Mesodesma* or on dead crabs at the shore line.

The people of our country are not very fond of eating fish and shellfish, though our waters are very rich in good edible species -- thus our fishery industries are not very big. Because of this there are few trawlers -- and I don't know of any of those motor boats ready for hire like those you have in Florida in which you can go deep-sea fishing. To obtain the species that must be dredged from more than two fathoms we must rely on some few fishermen who seem unable to understand very well our requirements. The result is, generally speaking, that rare and good shells are scarce here, to the extent that about the only shells we do *not* pick up are the common mussels.

Sometimes the scarcely known biological rhythms that rule the life of the sea allow us to enjoy collecting for a period of sometimes a few days, sometimes an entire season, of a single species that has not been present for a long time. For example, at La Paloma in 1966 it was easy to obtain for a period *Tegula patagonica* with operculum -- it might not appear again on the beaches until five or eight years have elapsed from that time.

THE TIMOROUS CARRIER SHELL

Close Observations of Xenophora conchyliophora Born

by Paul Shank

The Atlantic Carrier Shell, Xenophora conchyliophora Born, is one of the most fascinating of the mollusk family. Its timid existence conducts it through a life of hard labor and constant sulking. I've kept one in my aquarium for several months and some of the observations were quite surprising. Everything it does points to a means of eluding detection.

I've tried feeding it many kinds of algae, but it seems to prefer only the microscopic variety that is nearly invisible to the naked eye. When I bring a fresh supply of water -- which I always siphon directly off the ocean bottom, the Xenophora spends its entire time feeding off the material that settles to the bottom of the aquarium. When I haven't changed water for quite some time it feeds on the algae growing on the side of the aquarium, often placing its shell at a 45° angle against the glass to reach higher up the side. The fine algae that it feeds on leaves no noticeable trail for an enemy to follow as the Xenophora just picks here and there instead of leaving an unbroken trail as it feeds.

When there is plenty of food it never reaches beyond the limits of its shell, but feeds entirely on the material beneath the shell. Its foot is never in contact with the ground while feeding. Only when food is depleted in the immediate area does it place its foot on the ground, raise its shell, and move to a new spot. The foot is again lifted from the ground and feeding continues in the new area. This may be another means of protection by leaving very little scent on the ground for an enemy to follow.

I've tried its dexterity at righting itself and am quite satisfied that it can turn over on any kind of bottom that it would naturally encounter. On a sand bottom it would reach around the edge of its shell and force its propodium into the sand beneath the overturned edge and pull. On most tries it would flip over on the first attempt and seldom required more than two. I tried it on a hard smooth plastic plate but the Xenophora was unable to turn over on it. It would reach around its shell with its entire foot planted flat on the plastic and inch it all the way to the apex. When it would pull the shell would slide or else the foot slipped. This test was a bit unfair, as the mollusk would never encounter such a bottom naturally. I then tried it on a couple of flat rocks placed together which were more smooth than would ever be encountered normally. Again, it reached over the edge and under its shell all the way to the apex with its foot placed flat on the rock, then pulled. The shell slid several times but the animal finally gave a quick tug of the foot and snapped back into its shell and the shell rolled over with the narrow side against the rock but still upside down. The Xenophora then reached over again and found the crack between the two rocks. It forced its propodium into the crack and on the second try upended the shell and turned it over. I only tried it once on the rocks for fear of breaking it.

The rubble it had attached to its shell when I got it was entirely of fragments of Manicina areolata, a coral, placed like the spokes of a

wheel. The extreme width of the shell was 2 3/4 inches. It attached a Turbo castaneus, Chestnut Turban, 7/8 inches long about a week after I got it. Since then it has attached a second Turbo, 3/4 inch long, a 3/4 inch piece of Manicina areolata, a Crepidula maculosa 1 3/8 inches long, a third Turbo 3/4 inch long, both valves of a 1 3/4 inch Spisula solidissima similis with the upper valve twisted at the hinge joint so that it overlapped the lower about half way. The last was another surf clam two inches long. Its extreme width is now four inches and it lacks but a half inch of completing a full whorl.

The placing of the rubble isn't merely a matter of positioning shell against it and cementing it fast but a meticulous job on the part of the mollusk. The rubble is turned over, twisted around, or upended to get it into the exact position whereas it has a downward slope in relation to the shell. It is also brought into contact with the mantle and usually in such a position that the weight of the shell is partially holding it in position. The Xenophora uses its head and proboscis placed below rubble to raise it into place and its foot to raise and lower its shell at the same time, jockeying the two into position. Rubble is not turned by clasping between the propodium and metapodium as I have read but rather it is clasped between the base of the antennae and the proboscis. Flat pieces are actually picked up in this manner while the mollusk is standing on its foot holding its own shell up so rubble can be worked to a more suitable position beneath the previously attached rubble. Up to an hour and a half is sometimes spent getting the rubble into position. Sand is raked from under the rubble with the proboscis to assure more slope and consequently leave more space beneath the shell after attachment is completed.

After rubble is finally jockeyed into a suitable position the job is still not finished. The Xenophora then carefully cleans all the area coming in contact with the mantle to insure a tight joint during the process of cementing it fast. Gaps are checked between the mantle and rubble and filled in by sticking pieces of sand and tiny pieces of debris to the mantle edge by cleaning them and placing them there with the proboscis, one piece at a time. Occasionally, it sticks its head and proboscis under rubble for support and very gently rocks shell to and fro, evidently checking rubble for security of attachment. With the larger pieces of rubble the mollusk remains stationary for over ten hours to assure a tight bond before resuming its food hunting.

All the debris that is attached adds quite a lot of weight for the mollusk to carry around for the rest of its life but it is excellent camouflage and provides plenty of secluded space underneath for unmolested feeding. It would seem that all the junk attached would hinder movement but it is usually placed with the smoothest side down to prevent snagging and the low position with the downward slant keeps the center of gravity low and the base wide to prevent turnovers. I've watched it moving past an obstruction when it turned the base of the shell upward at about a 90° angle without falling on its back.

Last and most surprising of my observations is the Xenophora's habit of burying its feces. It forces both its propodium and its proboscis into the ground then spreads them apart, leaving a hollow between them in the dirt. The dark brown fecal pellets (which are extremely

small -- like termite droppings) then flow into the hole. Upon finishing, the propodium and proboscis are immediately withdrawn and the snail rakes the hole full of dirt with its proboscis, checking occasionally during the process to make sure it is covered completely before moving or feeding is resumed.

This little creature is definitely not a litterbug and although my report has ended, my observations have not.

Reprinted from: MIAMI MALACOLOGICAL SOCIETY QUARTERLY
Vol. 2, No. 4, January-March, 1969

REVIEW

CARIBBEAN CONES FROM ST. CROIX AND THE LESSER ANTILLES, by G. W. Nowell-Usticke. Livingston Publishing Co., Narberth, Pennsylvania. Paper, 31 pages; 4 black and white photographic plates; $3.35.

Mr. Usticke, a long time resident of St. Croix, has had a matchless opportunity to collect and study the shells of St. Croix and other West Indian areas, as the readers of these NOTES are aware from the many interesting reports Mr. Usticke has published here. This work shows that he has taken good advantage of his fortunate situation and that he is a close observer of the many specimens he has collected. He writes with enthusiasm and charm.

The discussion and description of the vast amount of variations found in the shells of a single species may well be useful in such matters as population studies. However, Mr. Usticke has chosen to give form and varietal -- as well as specific and subspecific -- names to several of these variations. The taxonomic validity of Mr. Usticke's new names will have to be determined by future students; the lack of holotypic and paratypic citations and the complete omission of type-localities will greatly add to the difficulty of proper evaluation.

Although this reviewer is no connoisseur of cones, he sees that three names at least must be rejected outright: Conus nullisecundus is an invalid emendation of cedonulli Linné 1758; C. mayaguensis is a junior synonym of C. abbotti Clench 1942; and C. hieroglypicus Duclos is a Reevean error for C. hieroglyphus.

New varieties and forms as such are not recognized by the Code of the International Commission on Zoological Nomenclature. The only infraspecific category recognized is subspecies, but to establish this the author must show distinct geographical separation from the nominal species and other subspecies. Intrapopulational variations are no more worthy of taxonomic recognition than blondes and brunettes are in the species Homo sapiens Linné 1758.

In spite of this the publication is not without value. The plates are excellent and clearly depict the shell characteristics. The author describes many heretofore unsuspected shell variations which give a clearer view of the true limits of the various species. And finally the geographical data and the many locality records will be of interest to all zoogeographers.

mkj

NYSC NOTES NUMBER 152 MAY 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 8th, 1969, at 2:00 P. M.

PROGRAM: ANNUAL ELECTIONS

DETAILS OF FIELD TRIP

FLORIDA SHELL SHOWS, 1969
by William E. Old

SHELL-OF-THE-MONTH by George Raeihle

FROM PHILADELPHIA

In NYSC NOTES No. 10 we carried news derived from the December, 1954 issue of FRONTIERS, the publication of the Academy of Natural Sciences of Philadelphia. It told of the establishment of the Pilsbry Chair of Malacology in honor of Dr. Henry A. Pilsbry who had been with the Academy for 66 years. (The Chair's) "first occupant will be R. Tucker Abbott, whom we know as the author of the recent AMERICAN SEASHELLS and who was kind enough to address us some years ago. We copy some data on Mr. Abbott from the FRONTIER article: 'Mr. A. is a native of Watertown, Mass. His university work was done at Harvard and George Washington. During the war he was a naval aviator. He is the author of.....HANDBOOK OF MEDICALLY IMPORTANT MOLLUSKS OF THE ORIENT and a large number of contributions to professional journals.'" (mkj - ed.) As we all know, in the intervening years publications by R. Tucker Abbott are too numerous to list here, but we must mention his editorship of INDO-PACIFIC MOLLUSCA and THE NAUTILUS. To bring us to date, the following letter, dated April 25, 1969 and addressed to Morris K. Jacobson, is reprinted here by permission:

> ....I recently decided, with some degree of regret, to resign from the Academy of Natural Sciences of Philadelphia, despite fifteen years of productive activities, and despite the Academy's historic eminence in systematic malacology.
>
> It is my pleasure to inform you of the establishment of a new center of malacology which will be devoted to traditional taxonomic studies, new curatorial procedures, the production of both scientific and semi-popular publications on mollusks, world-wide explorations for new material, and the development of a large public hall of shell exhibits.
>
> The Delaware Museum of Natural History, under the direction of John E. du Pont, was conceived in the early 1950's and incorporated in 1957. Its first building will be completed in 1970. At present, the interests of this center will be limited to mollusks, birds and mammals. Our purpose in malacology is to build up a research center that will serve as an ever-expanding repository of specimens for all workers, and to relate our endeavors to the growing needs of oceanography, conservation and the neglected interests of taxonomy.
>
> Indo-Pacific Mollusca and The Nautilus will be edited and published from the Delaware Museum of Natural History. I shall

hold the rank of Assistant Director, but will function largely as a research malacologist in the newly formed du Pont Chair of Malacology. My resignation from the Academy will be effective on June 30, 1969. In addition to my usual duties as editor, I plan to spend the first six months revising American Seashells. Academy duties will be carried on by Dr. Robert Robertson, Associate Curator.

We have many problems ahead. I hope you will help me in this new and exciting venture. I feel that American malacology needs a new center. Our library and collection needs will be basic and urgent for the first years of growth. We could not succeed without your kindness and good wishes.

Cordially yours,

R. TUCKER ABBOTT

Pilsbry Chair of Malacology
Department of Mollusks, ANSP

P.S. From July 1 to December 31, 1969, I can be reached at the Academy or the Delaware Museum of Natural History, Greenville, Delaware 19807.

(Our very best wishes are with Dr. Abbott and Dr. Robertson as they assume their new duties. --Ed.)

MEETING of the WESTERN SOCIETY OF MALACOLOGISTS

Dr. William K. Emerson, President, will preside over the second annual meeting of the Western Society of Malacologists, to be held at the conference grounds at Asilomar State Park, Pacific Grove, California, June 18 to 21, 1969. All persons interested in malacology and conchology are cordially invited to attend and participate in the coming conference.

Excellent accommodations in varying price ranges (American Plan) will be available for those making their reservations early.

For information on the conference or on membership in the Society please address the Secretary, Mrs. Paul O. Hughes, 12871 Foster Road, Los Alamitos, California 90720.

.... THE NAUTILUS, April 1969 (Excerpt)

THE CENTENNIAL MEDALLION

The 100 years of research and education of The American Museum of Natural History are beautifully commemorated in a Centennial Medallion cast in bronze. The Medallion bears on its face the 77th Street facade against a backdrop of the Western Hemisphere; both past and future are commemorated -- a Mercury space capsule and a pterodactyl appear on either side of the Museum. The other side of the Medallion features the man and horse skeleton symbol partially circumscribed by laurel leaves. Full title and dates circle the face.

The Medallion, issued in a limited quantity, is on sale in the Museum Shop, $4.50 each, plus 75¢ for postage and handling. AMNH April '69

NEW YORK HARBOR

by Mathilde P. Weingartner

New York Harbor being an estuary, this paper is about estuaries in general and New York Harbor in particular. New York Harbor includes: The Hudson and East Rivers, the Hackensack, Passaic and Raritan Rivers, Upper and Lower New York Bay, and the Narrows. Tidal water extends as far as Albany, and the salinity is discernible as far as Poughkeepsie.

Until about one hundred years ago much of this area was rural, surrounded by relatively clean waters. Rocks tumbled down into Raritan Bay and the whole estuary was teeming with life.

The salt marshes were the spawning areas and nursery grounds for myriad fishes that migrated up and down from the sea. They were the resting places and feeding grounds for countless ducks, geese, herons and occasional Marsh Hawks -- and with their colorful grasses and flowers the marshes were attractive to the eye. With the decay of vegetation each winter, nourishment gets into the water and life in the creeks multiplies rapidly. Acre for acre, there is more protein in a salt marsh than anywhere else on earth. Fiddler crabs dig their holes and come out at low tide in search of food. Algae, mosquitoes, shrimps and prawns inhabit the waters, and the birds and Hermit Crabs feed on them in turn. The eggs of many sport fishes as well as commercial fishes float among the weeds until they hatch, and the young fry have precarious living. "Little fish have bigger fish to bite them, and bigger fish still bigger fish, and so ad infinitum." Some of our salt marshes are still productive, but many have been dredged, filled in, and polluted.

Along our beaches, where bathers frolic, the Horseshoe Crabs, one of the oldest living creatures on earth, come up onto dry sand in tandem, the female to lay her hundreds of eggs and the male to fertilize them. The young crabs, after hatching, will find their way back to the sea, but the two adults may not be able to reach the water before some gulls peck the carapace full or holes, or some boys have nothing better to do than to throw rocks at these harmless creatures.

Laughing Gulls, Herring Gulls, and Black-backed Gulls comb the beaches for dead and dying fish, crabs, worms, or any other items they consider food. If it were not for these scavengers, our beaches would be uninhabitable, not only from nature's offal, but from human garbage, too.

From the upper beach the wind blows particles of sand into dunes, which would just keep on moving if it were not for the beach grasses and other vegetation. The roots of many of these plants hold the sand in place, and any disturbance of this vegetative cover can be disastrous to homes and other buildings which would not be protected from storms if the dunes disappear. Horned Larks, Seas-side and Sharp-tailed Sparrows, rabbits, mice and muskrats live behind the sand dunes and are food for owls and hawks which are protected by law for the good they do in consuming vermin. Terns nest where the vegetation is scarce, and catch small fishes, diving for their food as they fly over the water.

Further out in the bay, ducks, geese and cormorants find a safe win-

tering ground, since the discharge of firearms within city limits is against the law. Some of them dive for their food, reaching down for mussels and snails. The geese sometimes come to the shore, feeding on shore vegetation.

Both Staten Island and New Jersey had thriving oystering and clamming industries until about 1925. The oystermen used to fight as to who owned harvesting rights in what part of Raritan Bay. But then the waters became too polluted, and oystering and clamming is no longer permitted in New York Harbor. Research, done by the University of Rhode Island, disclosed that it takes up to 48 tides for one particle of water to travel from the mouth of the Raritan River to beyond Sandy Hook. The waters just eddy around and around in the bay, and in 24 days a lot more pollution can accumulate. And no wonder that Raritan Bay is one of the most polluted bodies of water on the Atlantic Coast, receiving the effluence of the heavy industry and heavy concentration of population that is all around this fine estuary -- the New York area needs a lot more sewage treatment plants, both for industry and human waste.

Some of the pollution occurring regularly in New York Bay is from the spillage of oil from refineries, tankers and barges. These oil slicks wash back and forth with the tide, catch among the marsh grasses to be later released by another tide to inundate other plants, animals and rocks. These oil slicks are a real danger to the ducks and other sea birds in the area, and every year thousands of them lose their lives when the oil gets caught in their feathers. Laws against these oil spillages are on the books, but the enforcement of them is difficult, and accidents do occur.

> "Estuaries are a happy land, rich in nutrients of the continent itself, stirred by the forces of nature like the soup of a French Chef, the home of myriad forms of life, from bacteria and protozoans to grasses and mammals, the nursery, resting place and refuge of countless species.
>
> Estuaries are unhappy lands, because of pollution, dredging and filling, and all of the things that man does to alter and destroy them." (N.Y.S. CONSERVATIONIST, 5/69)

GLEANINGS re: STINGS OF CONUS

In an article "Danger from the Sea" (SEAFARI, May 1966) Mr. Neil M. Hepler writes:

"There have been numerous cases reported where the victim died from a cone bite; however, there have been other cases reported where the victim survived, as shown in a report from Dr. Alan J. Kohn, well known authority on cone shells.

The report shows that of the known cases as of January 17, 1966, of recorded stings on humans by 14 species of *Conus* (48 in number), 13 were fatal; 13 near fatal; 16 less severe; and 6 cases of which the outcome is unknown.

The following list of species are responsible for the above:

aulicus
catus
geographus
imperialis
litteratus
lividus
marmoreus
obscurus
omaria
pulicarius
quercinus
sponsalis
textile
tulipa

Of the above list, Conus geographus has a record of 15 stings of which 8 cases were fatal. The species responsible are widely distributed in the Indo-Pacific province. No cone species in the Western Atlantic are known that produce a poison fatal to man, but all cones do have a poison apparatus and should be handled with caution."

When Dr. Donald Bosch spoke before us on "Shell Collecting in Muscat, Oman, Arabia" he mentioned another species as poisonous: Conus magnificus.

George Kline also warned us about handling cones, telling of a Conus brunneus that spat its fluid a distance of at least 12", hitting Mr. Kline's cheek. Fortunately he was wearing spectacles. The fluid was immediately washed off and no injury resulted.

In the CHICAGO SHELL CLUB NEWSLETTER of April, 1969, Royce E. Hubert describes the sting of a Conus papilionaceus Hwass as suffered by one of his party. It was likened to the sting of a bee - a rather severe sting; an area the size of a half-dollar quickly became discolored; stinging sensation and soreness subsided within twelve hours and the discoloration within three days.

All of the above named species are Indo-Pacific except for C. brunneus which is found in Lower California to at least off Panama, where Mr. Kline collected his specimen. However, our Western Atlantic species are not without danger, as evidenced by a report in SEAFARI of a St. Petersburg, Florida resident being stung by a 3½" Conus spurius atlanticus (the Alphabet Cone) collected at Mullet Key. What is more, the cone was being held by the spire, which is usually recommended. The sheller felt a sharp sting and saw a "glob of yellowish-orange fluid" on his finger; within seconds "extreme pain, like a hot needle" and localized swelling; "intense" pain for almost an hour; "ache" and swelling about 36 hours; tenderness for two weeks; mark left by the radular harpoon still noticeable after six weeks. Except for rinsing the hand in sea water at the time, no attempt was made to treat it in any way.

Those of us who have seen Dr. Alan Kohn's film of live Conus will well remember the instantaneous reaction of the small fish when stung by the cone, and the cone's proboscis opening wide to encapsulate the still struggling prey. Conus feed also on a variety of worms, other mollusks, and even other cones:

In the COURRIER INDUSTRIEL ET SCIENTIFIQUE for December 1967, page 5, under the title "Combats des Cones" is an item describing an encounter between a Conus textile and a Conus marmoreus in Australia, both apparently freshly collected. The final result of the bout was a lethal K.O. of textile by the champ marmoreus, who celebrated his victory by devouring his opponent. No chance for a re-match, even! It seems they both succeeded in getting in a lick with their poisonous little harpoons but apparently the textile just didn't have it that day. . . . "And in this corner, at ten centimeters, in the light brown periostracum ....." (Reported by Mart Hulswit)

Might we suggest that a good way to handle live cones would be with tongs or a long-handled spoon? Just NEVER put them in your pocket -- their harpoons can (and have done so) go right through clothing. dr

FROM TEXAS: BUSYCON SPIRATUM PLAGOSUS Conrad

by Dorothy Raeihle

Among the specimens collected on the AMU field trip to Mustang Island last July 19th were strings of egg capsules of the Pear Whelk, Busycon spiratum (= B. pyrum) subspecies plagosus Conrad, which is found in the western Gulf of Mexico. The strings were in the wash at the edge of the water, most of them rather ragged with capsules missing or broken. It was Anne Speers who called them to my attention when she handed me a string that was in generally good condition.

A few hours later, in the bus ready to take us back to Corpus Christi, one by one young Busycon started climbing out of the water and up the side of the collecting pail! Back at the hotel I transferred the string of capsules and the tiny Busycon to a plastic container with sea water just deep enough to cover the capsules, and thus carried them back to New York.

More specimens had hatched during the first day or so after collecting. They ranged from 3 mm. to 4 mm., their shells creamy with a light tan periostracum and a little sculpture at the shoulder. The animals were all white except for the black eyes; the minute yellow operculums were thin to the point of transparency. Later in the week, agitating the string of deteriorating capsules shook several small specimens out into the water. These were only 2½ mm., their shells consisting of only the smooth nuclear whorls with no sculpture; they did not survive. As hatching was completed the egg capsules became ragged and dilapidated. The 12" string had originally held about one hundred capsules, the capsules about 12 mm. in diameter.

Meanwhile, clinging to the egg string, on and between the capsules, were: a tiny gastropod that appeared to be Nassarius, perhaps a dozen minute Arca, two juvenile Mitrella lunata, three little brittle stars, and what seemed to be a larval shrimp. In addition, a few worms were inhabiting empty capsules and there were five little darting things, very fast, that unfortunately I did not take time to chase down right away. Unfortunately, because I later discovered them to be tiny crabs and though they were only to 3 mm. they were preying on the newly hatched Busycon.

At the end of the first week there were thirty surviving Busycon. They were fed on crushed mussel spat. At one month: twenty specimens; the largest one was 8 mm., double its height at hatching.

Pigmentation in the animals was first noticed at six weeks. On the smallest specimen of 4¼ mm. faint grey specklings scattered on the siphon and in a line on the tentacles could be discerned under magnification. In the largest specimens, 10± mm., there were overall grey specklings on the siphon; those on the tentacles were so close-set that they appeared as a black line from eye bulge to tip. The new growth of shell was patterned with the typical blurry brown stripes of spiratum; the identifying low shoulder keel of the plagosus was distinct.

The smaller ones continued to succumb until at four months there were but six survivors. They measured from 16½ mm. ("the runt") to 25 mm. Their food by now was small live Mytilus edulis, the common blue mussel, and juvenile Littorina species. At ten months these six

specimens measure 25 mm. x 12 mm. ("the runt") then 32 mm. x 15 mm. through to the largest one of 37 mm. x 19 mm. (Note that the width at the shoulder is just about half the height of the shell.) Their food is still *Mytilus edulis*, which is easy for us to obtain. But Littorinidae (any species) seem to be preferred -- when juveniles of *Littorina saxatilis*, *L. littorea*, *L. ziczac*, *Tectarius muricatus* or *Echininus nodulosus* are dropped into the aquarium it is very few seconds before the *Busycon* fairly explode out of the sand, tentacles and siphon waving, frequently proboscis also, to track down and attack the Littorinidae. Perhaps here we should remind you that these observations are of captive specimens; in their natural habitats *Busycon* and the Littorinidae have very different ecological stations.

Of the several species of gastropods we have observed in our aquariums, these *Busycon spiratum plagosus* are the first we have ever seen to carry prey forward of the foot, holding it high against the aperture with the head and propodium. This was the behavior when the *spiratum* were as young as two months. Later they were observed to sometimes carry their prey enfolded in the back of the foot, dragging it behind them in the manner of so many other gastropods. Also, when feeding on mussels they envelop the bivalve with the foot; they have not (as yet, anyway) used the edge of their aperture to open a mussel as we have observed with our local *Busycon*.

These little Texans prefer fine sand, burrowing in it until just the black tips of their siphons are visible at the surface. They did not do well when supplied temporarily with a coarse shell and sand mixture, staying on the surface and developing a fungus-like black coating on their shells which I had to wipe off with cotton swabs and a fine brush before transferring them to a clean container. At present they are feeding well in what seems to be a satisfactory situation of aerated sea water with very fine coral sand of sufficient depth for them to burrow.

NEW ADDITIONS TO NYSC LIBRARY

Through the generosity of our member Paul Ucko the following volumes have been added to our library:

"The Sea Around Us"	by Rachel Carson
"Under the Sea Wind	" "
"The Edge of the Sea"	" "
"She Sells Sea Shells"	Veronica P. Johns
"Beaches"	Robert and Sean Manley
"The Outer Lands"	Dorothy Sterling

THE INDEX

The New York Shell Club is indebted to Mike Werner who, in addition to his duties as president, has compiled an index for these NOTES. It had been long talked of -- but nothing was done about it until Mike went into action. His hand-written listings represented many hours of work before they were received by the editor to be checked and typed.

DID YOU KNOW that scientists plan to feed powdered lunar samples to oysters and plants? (Nat'l Geog.)

NYSC NOTES NUMBER 153 JUNE-JULY-AUGUST 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, SEPTEMBER 14, 1969, at 2:00 P. M.

PROGRAM: CYMATIDAE A color slide presentation,
by Hal Lewis

REPORT ON NYSC FIELD TRIP TO CAPE COD
by participating members

SHELL-OF-THE-MONTH
by George Raeihle

OUR TWENTIETH ANNIVERSARY was well celebrated with fine programs. Beginning in January: Dr. J. P. E. Morrison of the U. S. National Museum lectured on "The Life History of Mollusks", detailing the manner of reproduction in various mollusks with differing ecological environments, each method adapted to best insure survival of that species. In February most of us were "snowed out", but the stalwarts enjoyed an account of shelling adventures in exotic places by Mr. Daniel Boust. At the March meeting we were privileged to have two guest speakers: Dr. Harald Rehder of the U. S. National Museum had as his topic "Marine Mollusks of the Marquesas Islands" and described the 1967 expedition to gain knowledge of the marine fauna of the area. The report is summarized in the AMU ANNUAL REPORTS for 1968 -- and should be read with memories of the gorgeous color slides of shells and scenery that accompanied Dr. Rehder's presentation.

Dr. Melbourne Carriker, of the Woods Hole Oceanographic Institute, is well known for his work with Urosalpinx cinerea Say (the oyster drill). He is director of the Systematics-Ecology Program of the Marine Biological Laboratory. At our March meeting he spoke on "The Drilling Mechanism of Urosalpinx cinerea". Not only spoke, but showed us with color slides: Dr. Carriker had ingeniously managed to get microphotos of the actual process of drilling and feeding, then followed with more microphotos of the radula itself and a recording of the sound of the scraping. Most interesting was the fact that acid from a gland within the tip of the proboscis is used to soften shell before the radula is used for periodic scraping.

April's "Shell-Social" was highlighted by Russell Jensen's films of living mollusks. In May, Mathilde Weingartner described fauna of New York Harbor, with past and present conditions. Then Waverley and Francis Harmon gave a color slide presentation describing their shelling trip to the Australian Barrier Reef, timed to coincide with the full moon and low tides. The story of their travels was continued at the June meeting, when they presented the record of their shelling visits to Mauritius, Madagascar, and New Zealand. Many beautiful and unusual shells were collected and photographed along with their ecological stations. But this was not all. The Harmons are interested in the people and the countries they visit, and Mr. Harmon's astute observations, given as background or side remarks as he showed the slides, added a third dimension to their presentations.

REVIEW

RARE SHELLS, by S. Peter Dance, is a companion volume to Mr. Dance's earlier work, SHELL COLLECTING, An Illustrated History. The present tome has an introduction by R. Tucker Abbott. It states: "Today sea shells are in vogue. Land and freshwater shells, which have nearly always taken second place, are not." And the first query is, "What is a 'rare' shell? A shell may be called 'rare' for two quite different reasons: it may be scarce in nature, or scarce on the market."

There are sections on Collectors' favorites, Beginning of shell collecting, Antiquarian books, Early Rarities, on Captain Cook, Hugh Cuming, famous collectors, rare shells at auction, rare shells from deep sea, or from fish, and a thought-provoking one, "Future supplies assured - or are they?"

The bulk of the book is given over to fifty selected rare shells. These are beautifully illustrated on 24 color plates. While many more shells are discussed in the book, the author selected these fifty to figure and to discuss in detail. As he states, "About three-fifths of these fall in the 'lost and found' category, sixteen are type specimens. All but three were described as new to science before 1900."

RARE SHELLS is a virtual goldmine of shell lore, and is highly recommended.

University of California Press, 2223 Fulton St., Berkeley, Cal. 94720.
Price $17.00, postpaid if remittance accompanies order.

W. E. Old

SHELL STAMPS

A recent issue of postage stamps from Papua and New Guinea is completely given over to sea shells. These are beautifully reproduced, multicolor stamps, with designs as follows: 1c *Strombus sinuatus*, 4c *Conus litoglyphus*, 5c *Conus marmoreus*, 10c *Voluta ruckeri*, 12c *Phalium areola*, 15c *Lambis scorpius*, 20c *Tridacna squamosa*, 25c *Lioconcha castrensis*, 30c *Murex ramosus*, 40c *Nautilus pompilius*, 60c *Charonia tritonis*, $1 *Papustyla pulcherrima*, a pair of this tree snail, usually known to collectors as *Papuina*, and $2 *Conus gloriamaris*.

(Locally available from Veronica Johns, Seashells Unlimited, Inc.)

W. E. Old

FROM THE MAIL BAG:

A note from NYSC member Codman Hislop, whose concern is with *Conus*, but who may yet be enlisted as a collector of Vermont shells:

"I have a first class copy of ZOOLOGY OF NEW YORK, or, the NEW YORK FAUNA....by James E. DeKay. Part V, MOLLUSCA. Albany, 1843. Forty colored plates of shells and three of crustacea. I'd be glad to trade this volume for the rarer cones of the Caribbean and Panamic provinces. Perhaps you know of shell club members for whom this specialist's volume would be important....."

Members interested in the requested exchange should write directly to Mr. Codman Hislop, Dorset, Vermont 05251.

LAND MOLLUSKS AND NOXIOUS WEEDS OF THE CONNECTICUT VALLEY

by Milton Werner Jr.

In the several years since my interest in sea shells developed lungs and began to crawl on the land, most of the crawling has been done along the edge of a small marsh off the Connecticut River, at Portland. The moisture, the shade trees, the undergrowth, the rotting wood, the scattered bark and the dead leaves are all there, and so are the snails -- more in abundance than variety, perhaps, but at least I've never come away empty-handed. Nor without later breaking out in an itchy, leaky rash.

For those who are immune to poison ivy and its associates, but who regard cigars as noxious weeds, one of the Valley's tobacco fields pokes a corner almost into one of the better thickets. (For those who regard cigars more highly, they always seem to be at the peak of their flavor during a snail hunt, but still somewhat effective against mosquitos.)

Portland is in south central Connecticut, about 20 miles below Hartford, and on the east bank of the river, across from Middletown. When I visit cousins there I often take along my high shoes, a long-sleeved shirt, insect repellent, Ziradryl lotion, a hefty pocket knife, and brown soap. Ziradryl is a before-and-after lotion. It may or may not be helpful before, but it does relieve the inevitable itch. The knife is for opening up likely-looking crevices in decaying wood, stripping partially loose bark, and lifting small specimens out of narrow spaces. The brown (or laundry, or non-fat) soap is for washing, immediately after the expedition -- twice, vigorously.

My cousins' house is the last one on a street that ends at the river's spring-thaw high water mark. The back yard adjoins the aforementioned corner of the tobacco field, so the location of the hunting ground could hardly be more convenient.

The ideal time for collecting is, of course, a night still wet from rain. The quarry comes out of hiding places at ground level and walks around, sometimes even on the broad side of a log, a foot or two above ground. But collecting by flashlight and mosquito bite has its difficulties, even without excessive dampness. A cool day, after a rain, is almost as satisfactory to the snails, and a day that's just a bit too dry for them is just right for me. The prospect of adequate light, fewer bugs, good footing, and a dry place to sit when the search narrows down to a couple of square feet, seems to rouse my stalking instinct -- the satisfaction of outwitting holed-up (and witless) game, and all that.

On such a day, the primary collecting technique is a picking-up procedure. Most of the action - or torpor - is on the underside of things -- the closer to the moist ground the better. Hunks of wood, scraps of bark (especially those lying inside-down) and moist leaves have to be turned over and examined for specimens that average about an eighth of an inch in diameter. In the convenient thicket, the census of this group is *Zonitoides nitidus*, *Z. arboreus*, *Discus cronkhitei*, *Retinella electrina*, *R. indentata* and *R. rhoadsi*, occasionally *Cionella lubrica*, and once in a blue moon *Helicodiscus parallelus*. The best bag of *Cionella* came from the underside of a rusting lid from

a five-gallon drum. The only easy-to-see species are *Mesodon thyroidus* and *Succinea ovalis*. Besides being considerably larger than the rest, they often do high-wire acts on green stalks. On a day that's gloomy enough, *Mesodon* will act as official greeter, at the edge of the cover.

On Sunday, June 15, circumstances brought a belated innovation in exploiting the marsh's possibilities. It was a particularly attractive day all around: cloudy; ground damp from recent rain; underbrush dry. And there I was in Portland, deserted for the afternoon by my hosts. And there lay the far side of the marsh - the river side - as yet unexplored.

I chose the short route: 150 yards straight to the river, upstream for about the same distance and then in, along the bed of the seasonal stream that keeps the marsh marshy. I'd have made the trip long since, except that the ground sags between the house and the river bank and cradles a bog for weeks after the spring flood, and long after a rain. Besides, it's a cow pasture. But today was the day!

A registered bog-trotter might have skipped across from tussock to tussock, but I skipped a few tussocks. Gray shoes, gray socks, gray feet. No matter -- in the heat of the chase, wet feet are soon forgotten. Like three-leaved plants. All that concerned me was the possibility that the annual floods might make the river side a molluscan never-never land. Right turn along the river bank; end of pasture; trees; the muddy watercourse.

Moving inward along a bank of the stream, I became more discouraged with each futile scrutiny of a piece of bark or wood. And this was comparatively high ground. Within a few yards it dropped until the bank was only a shallow slope. Drowned out or not, the situation here had all the other promising characteristics, so I kept nose to ground.

The cover at the beginning of the low area was of broad-leaved, water-loving plants standing about a foot high. In their shade were moist, rotting logs and limbs, and on limb No. 1 was the answer, in plain sight after some leaves had been pushed aside. A huge snail -- at least a half-inch across. Even better, it was *Anguispira alternata*, a species I've never seen in the opposite thickets.

During the next hour I didn't cover much ground -- a few yards of the bank and a few of the stream bed -- but I kept my hands busy and my legs cramped. The *Anguispira* total ran to 15, from juveniles to mature. Eight adult *Succinea* and two young'ns. Seven *Mesodon*, from half-size to mature. Two are slightly darker in body color, and I'd like to think they're *Triodopsis albolabris*, but I'm afraid the urge will subside. A couple of *Zonitoides arboreus*, and a half-dozen *Z. nitidus*, a quarter-inch in diameter, larger than most on the other side. Several look-alike *Retinella*, possibly all *electrina*, except that two have dark gray bodies and the rest medium gray. And last, but not least (except in size), 10 *Helicodiscus parallelus*, one of them half-grown. They like to find little places for themselves in deteriorating wood, but while there's plenty of that on the other side there must be a subtle ecological disparity (Possibly in rent control?).

As a reminder of the flood, two of the specimens turned up in the stream bed were tiny fresh water clams (now dead) of the genus Pisidium.

I called it a day when I came to a large tree I had seen fall an hour before. It blocked the stream bed, and something about it said "supper time". I was hardly out in the open when a substantial rain commenced. But when you're bouncing zig-zag across a flooded cow pasture you don't notice rain. (Dinosaur tracks are plentiful in the Connecticut Valley. Small wonder.) I left my soaked hiking shoes on the back porch, so I forgot them when I went home.

On Tuesday the first blisters broke out, and on Thursday I stayed at home and kept the right side of my face company. I couldn't remember nuzzling any vegetation, but it later occurred to me that the outbreak on my right thumb is where it rests against my face when I stare through a magnifying glass (as on Tuesday) at such puzzlements as Retinella something-or-other. Most of the time, to paraphrase Mark Twain, I could learn as much by looking through a stove lid. Since stove lids must be held several inches from the face for sharp focus, I may make the switch, at least during any week after thrashing about among noxious weeds.

(The following article was found among the effects of NYSC charter member Fred Tobleman, of Ocean Grove, New Jersey.)

FORTY YEARS A CONCHOLOGIST

F. Tobleman

In an old fashioned parlor stood a walnut whatnot, and on it were four sea shells that were greatly admired by a small boy. In fact, they were a gift from an aunt and a grandmother. The boy was taught by his mother that they were the handiwork of the Creator and not made by man.

He went to school and like most boys had a general collection which went, but the shells were kept and added to, until quite a collection was made. Family friends became interested, especially a Mrs. Force who lived in an old fashioned house whose attic was a delight for any collector. She used to give me shells for doing her chores.

It was on excursions to Ocean Grove that I used to buy others from a concession in the North End pavilion. Nice ones at prices that were very low, ranging from five cents up.

Another place was Ehelers Antique Shop where I used to buy the shells that came in with other goods. From an advertisement in a magazine which read as follows:

> "Sowerby shell and catalogue of shells and marine curios
> 25 cents. J. H. Holmes, Clearwater, Florida",

I became acquainted with Captain Holmes (a retired sea captain). He was one of the most reliable men I ever dealt with, and I dealt with him until his death, when Mr. Charles B. Lungren took over his store.

I later became acquainted with an old Civil War veteran by the name of Griffin who was quite a mineralogist but he had a few shells. It was in his oyster house that I saw what was to be a treasure to me. THE SHELL BOOK by Julia Ellen Rogers, the first that I had ever seen

and you can guess that I wasted no time in getting it from the library. Later I bought one from Brentano's that was slightly water damaged. It was from Captain Holmes that I bought "Structural and Systematic Conchology" by Tryon, and U. S. N. M. Bulletin 37. The library had "Woodward's Manual" and "Popular British Conchology" by Sowerby.

Having a number of shells that I couldn't name from "The Shell Book" I took them to the American Museum. There I met Dr. Gratacap who not only helped me with the naming of specimens but gave me quite a few duplicates. It was on his desk that I saw "The Nautilus" for the first time, and it was through him that I became acquainted with Mr. William H. Weeks and Mrs. E. Ward Thompson.

The Thompsons invited me to spend my vacation with them for several summers, and with them I visited the Boston Society of Natural History and I became acquainted with Mr. Charles W. Johnson and also collected at Nahant and Swampscott. It was from them that I learned to use the microscope.

One day a letter came from Dr. Gratacap telling me that a small collection had been offered for sale to the Museum. I went to see the collection that the Museum didn't want and purchased the same for fifteen dollars. It was in two enormous bureau drawers with plenty of dirt, which I could have gotten along without. The shells had been collected by the ship's surgeon of the expedition of 1854 when Perry opened Japan to the world; there were not many species but there were lots of duplicates that I used for exchange.

From a Greek sponge dealer I bought quite a few shells including seven Voluta junonia for which I paid 15 and 25 cents according to size. I had previously bought a pair from Holmes for $5.00.

I have exchanged with collectors in the United States, Europe, Cuba, Australia and New Zealand. Also, I have purchased shells from Fulton Webb, Ward's and others and have nearly 200 species in my collection.

Some years ago I received a letter from Mr. Norman Lermond stating that he was organizing a shell society* and wanted to know what I thought of it. I wrote back: "Thank God somebody has at last started something!" He used different remarks on other letters and through one of these I became acquainted with Sydney Marks.

Marks and I tried, without success, to start a shell club in Newark. But I kept on collecting both in the field and by purchases and exchanges until I was taken sick, which brings it up to the organizing of the New York Shell Club.**

---

* The American Malacological Union

**Mr. Marks and Mr. Tobleman were both charter members of the New York Shell Club, founded early in 1949. Thus Mr. Tobleman's interest spanned almost 60 years, remaining active until his death in July of 1968. His collection is now housed in a private museum owned by Mr. Edmund Wisner and Mr. Victor Wisner, 60 Norwood Road, Elberon, New Jersey, and may be visited by appointment. .....Ed.

DATES TO REMEMBER: July 21 - 25, AMU Meeting in Marinette, Wisconsin.
September 14, NYSC Meeting at the American Museum.

JUNE, 1969, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome our new members and reinstatements, and bring you to date on address changes:

*ANTONSANTI, Mr. José A.	Vivaldi Pacheco #1 Yauco, Puerto Rico 00768
BENNETT, Mr. Michael E.	84-51 Beverley Rd., Apt. 4F Kew Gardens, New York 11415
BIJUR, Mr. Jerome M.	135 Seventh Avenue North Naples, Florida 33940
BORSDORFF, Mrs. Margaret	3 Oakland Place Great Neck, New York 11021
**BURCH, Mr. John Q.	1300 Mayfair Road, 61-L Seal Beach, California 90740
FERNANDEZ, Dr. Francisco+Fernandez	Facultad de Agronomia, Apdo. 4579 Maracay, Edo. Aragua, Venezuela
HUTCHINGS, Miss Fran	3910 Battersea Road Coconut Grove, Florida 33133
KLEIMAN, Miss Adriana R.	1 Washington Square Village New York, New York 10002
MARINCOVICH, Mr. Louie	102 North Oxford Avenue, Apt. 1 Los Angeles, California 90004
*MASKALERIS, Miss Dorothy	310 East 49th Street New York, New York 10017
MORRIS, Mrs. Anthony S.	62 West 182nd Street Bronx, New York 10453
*PALACE, Mr. Edward	2031 Colonial Avenue Bronx, New York 10461
RAITH, Mr. Oscar M.	2077 Ridgebury Drive Dayton, Ohio 45440
*REMMERT, Mr. Robert	1092 Logan Road Wantagh, New York 11793
ROY, Miss Adrienne	15 Franklin Street Verona, New Jersey 07044
*SIMPSON, Mrs. James (the former Linda Welch)	2158 West 7th Ave., Rear B. Suite, Vancouver 8, B. C., Canada
*WUNDER, Mrs. Elizabeth B.	2950 Bronx Park East Bronx, New York 10467

*Reinstated. **A long-time member, inadvertently omitted Jan. 1969.

CHANGES IN ADDRESS

BROWARD SHELL CLUB	c/o Mary Lou Stoner, Librarian 2630 S.W. 20th St. Fort Lauderdale, Florida 33312
FELLOWS, Mr. Carl F.	Mt. Vernon, Maine 04352
KNAUER, Mrs. Freda S.	244 33rd Street Avalon, New Jersey 08202
SCHMULOWITZ, Mr. & Mrs. E. (Temporary):	c/o Shafer, 2715 Lee Place, Bellmore, L. I., New York 11710
TRAVERS, Louise Allderdice (September, 1969): (Mrs. K. T. Barnaby)	1201 Brookwood Drive, Tallahassee, Florida 32303

NYSC NOTES NUMBER 154 SEPTEMBER 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Recording Sec'y
ANGELA SAVINO

Historian
NICK KATSARAS

*Corresponding Sec'y
GRACE MC DOUGALL
16 Baxter Avenue
New Hyde Park, N. Y. 11040

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: SELMA FEINBERG, *2334 Tiebout Avenue, Bronx, New York 10458

Editor: DOROTHY RAEIHLE, 7924 Ankener Avenue, Elmhurst, New York 11373
Assoc. Editor: ANTHONY D'ATTILIO Special Editor: M. K. JACOBSON

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

* = See page 6

NEW YORK SHELL CLUB NOTES No. 154 September 1969 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, OCTOBER 12, 1969, at 2:00 P. M.

PROGRAM: ADVENTURES IN BIVALVE DEVELOPMENT
by Dr. Ruth D. Turner, Museum of Comparative Zoology, Cambridge, Mass.

REPORTS on NYSC Field Trip to Cape Cod; AMU Meeting, Wisconsin; Meeting of Western ~~Assoc.~~ Society of Malacologists, California.

ANNUAL ELECTIONS:

At our June meeting the incumbent staff was unanimously reelected with the exception of Corresponding Secretary Grace McDougall whose resignation was regretfully accepted. We owe many thanks to Mrs. McDougall who has served the club for many years and, though she is preparing for retirement next year, continues to serve until that time as she is agreeable to having the machines and supplies for these NOTES remain in her basement. We appreciate her hospitality that the NOTES may continue as before pending further arrangements.

The vote was unanimous for our new corresponding secretary, Dorothy Jensen, who has already done much work for the club in other capacities. Mrs. Jensen's address is 31-08 Broadway, Astoria, New York, 11106.

MR. HAROLD LEWIS GUEST SPEAKER

At our September meeting Hal Lewis of the Philadelphia Shell Club presented a most interesting and detailed study of Cymatidae, with color slides illustrating the many variations in this family which has a worldwide distribution. Very informative was the comparison of similarities of shell structure in specimens from widely separated ecological stations. Some of these look-alikes were tentatively attributed to the unusually long time the veliger is able to postpone metamorphosis while it is being swept by the currents to an area favorable for settling. This is more than just theory: Mr. Lewis referred to a recently published paper by Dr. Rudolf Scheltema reporting that larvae of this family has been found in the waters off Cape Cod, intercepted as they were swept from their probable hatching area near Barbados north and eastward to finally find a settling place in the Azores!

NOTES AND NEWS:

The 1970 meeting of the American Malacological Union will be held in Key West, Florida, in July. The date will soon be announced, and we will report it here.

We're sorry to learn that our member Dr. Joseph Golden is under the weather. We certainly wish him a speedy and complete recovery!

Marian Schroth Hubbard has rearranged her shell collection so now

has a number of boxes she'd like to pass on to another collector: Thirteen of heavy cardboard covered with slick orange paper, 12½" x 18 1/8" x 1 3/4"; seven of lighter weight cardboard, off-white, almost 11½" square x 2½" deep. Address: 3957 Marlow Court, Seaford, New York 11783

Dorothy Germer tells us that she has more than she needs of some species from Sea of Cortez and thereabouts, and that she'd like to recoup for at least a part of their value.

SEASHELLS FROM BORNEO

Mary Saul has available a limited number of her "Borneo Parcels". Each contains one hundred different species of fine marine shells live-collected in Sabah, with names and data. Price $10.00 plus postage $1.75. (Bill Old has one of these parcels and considers it top value.) Orders received by November 15th will be posted in time for Christmas delivery, gift-wrapped and with Greeting Card on request.

Send your check or money order in the amount of $11.75 to Mrs. Mary Saul, Gate Cottage, Castlemorton Common, Malvern, Worcestershire, England.

DORMA PAXSON COLEY

Word reaches us that Dorma Paxson Coley, long interested in shells and a New York Shell Club member since 1960, died on September 15th. She had been in poor health for about two years. We join her many friends throughout the country in mourning her passing.

GEORGE WILMOTT

We have learned of the death in early August of NYSC charter member George Wilmott. Mr. Wilmott was very active in club activities during the early years of the club's existence, when he resided in the New York City area. Though he moved away several years ago he retained his interest in both shell collecting and this club which he had helped to organize.

LIBBIE HENRIETTA HYMAN

Dr. Libbie H. Hyman, the foremost authority in this country on invertebrate organisms, died on August 3rd. She was 80 years old.

Dr. Hyman conducted most of her life work at The American Museum of Natural History where she was a Research Associate in the Department of Living Invertebrates. She had been with the Museum since 1937.

Dr. Hyman was world famous for her classic research and writing on invertebrate animals, which took the form of a monumental treatise entitled THE INVERTEBRATES. The work was begun in 1931, and the sixth volume was published in September, 1968 (Volume VI, Mollusca I, published by McGraw-Hill --Ed.). The treatise is expected to encompass ten volumes and, when completed, it will cover the entire field of invertebrate zoology, with special reference to anatomy, embryology, physiology and ecology. The final volumes are to be completed

by a group of scientists headed by Dr. Joel H. Hedgepeth of the Marine Science Laboratory of Oregon State University.

Before her association with The American Museum of Natural History began, Dr. Hyman had completed a college laboratory manual on comparative vertebrate anatomy. It was highly successful and has been used by three generations of college students.

In addition to THE INVERTEBRATES, Dr. Hyman has written some 145 scientific papers on the invertebrates, the first having been published 52 years ago and the last in 1966.

On April 9th of this year Dr. Hyman was honored at The American Museum of Natural History, which presented to her its Gold Medal for Distinguished Achievement in Science.

Excerpt Dept. Pub. Rel.
Release, AMNH.

THE INTERNATIONAL COMMITTEE ON ZOOLOGICAL NOMENCLATURE AND ITS FUNCTIONS

by Morris K. Jacobson

In New York Shell Clubber Veronica Johns' delightful new book on her adventures as a shell dealer, "She Sells Seashells" (Funk & Wagnalls, $5.95), there appears a slightly misleading statement about the role which the International Committee on Zoological Nomenclature (ICZN) plays in the world of taxonomic zoology. The author indicated that it is the Commission which decides whether a newly proposed name is a species, a subspecies, or nothing at all. This, however, the commissioners do not do.

To make such a decision, recourse would have to be taken to detailed biological or zoological criteria, something the Commission is not empowered to do and is not able to do even if it wanted to.

Years ago a conchologist, exasperated at the huge number of new genera and species that were appearing every year, demanded angrily that no new names be adopted until they had all been officially passed on by a small group of experts. Pilsbry opposed this suggestion and pointed out that no "expert" can be a greater expert in a certain circumscribed field of malacology than the humble student who had devoted years of tender loving care to the study of that single field.

The function of the Commission (ICZN) is purely legalistic. It works only with names. It is not interested in zoology. Zoologists studying the field propose names for new entities. ICZN merely decides, if it is asked, whether the letters that go to make up the name are valid and can be used.

An amusing example of the work which ICZN performs can be seen in its Opinion 105 -- in legal terms a decision -- which it issued in 1929.

The case involves a Polish scientist named Dybowski who published a synopsis of the beach fleas (Gammarus) of Lake Baikal in the Soviet Union. In this paper in all seriousness he proposed a few names like: Siemenkiewicziechinogammarus siemienkiewitschi, Cancelloidokytodermogammarus (Loveninuskykytodermogammarus) loveni, and Parapallaseakyto-

dermogammarus borowskii variety dichrous. Only a nut would accept such names for every day use. Mary J. Rathbun of the United States National Museum petitioned the ICZN that they eliminate such whimsicalities. Though the names had been validly proposed for presumably zoologically distinct organisms, the Commission voted to suppress them under its power to suspend the rules of priority and hence permit a new set of names, more mouthable, to be substituted. The reason it gave was that "accepting them will clearly result in greater confusion than uniformity". To put it mildly. (Later the good professor confessed that he had proposed these names only "provisionally".)

Actually the names, long though they are, were constructed logically. Let's be patient and examine the first one. At the end of the generic name we find the syllables -gammarus. This is the name of a genera of beach fleas. Now this type of beach flea seems to have had a spiny appearance, and spiny gives us the root -echino. So we have -echinogammarus, a spiny beach flea. Finally, Dybowski had a friend whose name was Siemienkiewitsch or Siemienkiewicz (which is not Dybowski's fault) whom he wanted to honor by naming the tiny crustacean for him. Hence we have Siemienkiewitschiechinogammarus. Note that he honored his sesquipedalian friend twice in slightly different form. Similarly the other names can be broken up and at least understood if not forgiven.

The point to be kept in mind is that the ICZN did not pass on the validity of the newly discovered beach fleas. It merely rejected the names. If the new beach fleas did indeed turn out later to be invalid -- already named, not distinct enough, or what have you -- it will be zoologists and not the Commissioners who will make that point. And, as frequently happens, maybe not all zoologists will be in agreement. . . .

SEA GIFT

by Mary Saul

Some six miles to the south of Jesselton, capital of Sabah (North Borneo), one of the loveliest sand beaches in the world sweeps for a good two and a half miles from Tanjong Aru Point to the Petagas River.

From the Point north to the town a string of islands shields a narrow channel choked with coral reefs and edged on the mainland side by the remains of old mangrove swamps, but south of the Point Tanjong Aru Beach (Beach of the Casuarine Trees) spreads its golden sands to the South China Sea. The nearest land across that sea to the northwest is Vietnam, over 600 miles away. There are no rocks, no reefs along this stretch, nothing but the shallow sea and the sand with its background of mountains and its fringe of aru trees.

The molluscan population of the beach is small...the ubiquitous Polinices mammilla which seem to be able to live almost anywhere; a race of very small Olives less than a fifth the size of their cousins around the Point; three species of Conus -- figulinus, loroisii and radiatus; and the little Terebra, Hastula caerulescens which pop out of the sand under the wash of the receding tide and hang on by the tip of the foot for a moment before digging in again. At low water's

edge live small *Eucithara marginelloides* and from just under the wet sand large numbers of the smooth clam *Meretrix meretrix* are raked out by natives for the making of a delicious soup.

But from time to time, during the season of the Southwest Monsoon which runs from May until October, the South China Sea casts a rich gift onto this beach.

Borneo lies south of the typhoon belt but her west coast lies open to the deep swell which follows typhoon storms in the northern part of the sea a thousand miles away. From two to four days after such a storm has been reported, the sea may cast a tremendous load of bottom debris onto the beach, much of it vegetable matter from the forests which has been reduced to the consistency of wet tea leaves. Amid this debris, marvellously preserved in its softness, may be found a treasure-trove of live molluscs, rare, uncommon and of those very fragile species which are otherwise almost impossible to obtain whole and undamaged.

During our last year in Borneo, while living beside this beach, the Gift was offered twice -- on May 19/20 and on July 27/28 (1966) -- and both times within three days of typhoons to the north. On those occasions one could take a bucket along the beach and fill it again and again with treasures: *Strombus canarium* by the hundred but also several *S. marginatus septimus*, *marginatus robustus* and three *vittatus vittatus* (form *turritus*); *Architectonica perspectivum* by the score, but this year some half-a-dozen of an unusual form we had not encountered before. Countless *Bursa rana*, several other Bursidae of species unknown to us and three beautiful *Distorsio reticulata* with rich dusty-pink apertures; scores of *Semicassis bisulcata* and four splendid specimens of *Phalium glaucum*, perfect but not alive; as many *Tonna dolium* and just two of the lovely form *parvula* with its deeply pleated lip; large numbers of *Polinices didyma*, but also some *Natica onca*, *lineata* and *alapapilionis*; scores of *Murex brevispina* and a few *M. ternispina*; four species of Turridae -- *Turricula javana*, *Lophiotoma acuta*, *marmorata*, *Clavatula nelliae*; a couple of very large *Turritella terebra*; several Mitridae; *Bulla ampulla*, *Atys cylindrica* and *naucum*; and that curious bivalve/univalve *Brechites penis*, many in broken pieces but one whole and still alive.

It is among the bivalves, however, that the greatest treasures are to be found. Two *Laternula anatinus* alive and perfect; two *Mactra violacea*, one small and richly tinted, the other large and paler; three *Phylloda foliacea*, deep gold and almost transparent; a few deep purple *Sanguinolaria diphos* and one very large and gorgeously coloured *Placuna sella*; the rare *Bucicardium sinense*, *Lucina venusta* and *Fulvia apertum*; large numbers of *Paphia textile*, several species of *Dosinia* including *duplicata*, *trigona* and the uncommon *juvenis*; three species of *Solen* and a host of the most fragile shells of all -- *Siliqua radiata*, *S. winteriana*, *Gari truncata*, *Tellina opalina* and *lanceolata*, *Apolymetis edentula* and *bruguieri*.

If you do not accept the Gift when it is offered, the opportunity may not come your way again. The very next tide may sweep every particle and shell away, leaving nothing but the clean yellow sand....so that people often say, "We never find any shells on Tanjong Aru Beach!"

* PLEASE NOTICE *

We call your attention to changes not yet recorded on our cover:

Corresponding Secretary: Mrs. Dorothy Jensen
31-08 Broadway
Astoria, New York 11106

Editorial Staff: Dorothy Raeihle
M. K. Jacobson
Milton Werner, Jr.
Anthony D'Attilio (Consultant)

(Please note changes in addresses listed below for Raeihle, D'Attilio and Jacobson.)

Librarian: Harold S. Feinberg.

WE WELCOME the new members who have joined us this summer:

Patricia Bowman, 200 West 58th St., 4A, New York, N. Y. 10019
Mary Louise Brown, 17 Gutheil Lane, Great Neck, N. Y. 11024
Adele Buckalter, 156 West 86th Street, New York, N. Y. 10024
Frank J. Nelson, 1856 Madison Street, Brooklyn, N. Y. 11227
Richard Righthand, 339 Blue Hill Terrace, Wyckoff, New Jersey 07481
Mrs. August G. Schmuhl, 16 Dogwood Drive, Madison, New Jersey 07940
Billie J. Scott, 200 West 58th St., 4A, New York, N. Y. 10019
Mrs. Alice F. Windsor, 11 Carlton Court, Maplewood, New Jersey 07040
Mr. Thomas C. Rice, P. O. Box 33, Port Gamble, Washington 98364

CHANGES IN ADDRESS:

Bennett, Mr. Michael E., 84-51 Beverley Rd, 4F, Kew Gardens,
New York 11415
Clover, Mr. Phillip W., Box 33, Div. 32, FPO New York 09540
D'Attilio, Mr. & Mrs. Anthony, 1740 Upas St., Apt. #7,
San Diego, California 92103
Fisher, Mr. & Mrs. Fred, 32-62 33rd St., Astoria, New York 11106
Jacobson, Mr. & Mrs. M. K., (temporary) c/o Dept. of Mollusks,
Museum of Comparative Zoology,
Harvard University,
Cambridge, Massachusetts 02138
Junge, Mr. A. R., 89-19 171st St., 2P, Jamaica, New York 11432
Raeihle, Mr. & Mrs. George, 5346 82nd Street, Elmhurst, N. Y. 11373

DONAX FOSSOR = DONAX VARIABILIS?

An interesting article in NAUTILUS Vol. 83 (1) July 1969 by Paul Chanley projects the theory that Donax fossor is a summer range extension of the colorful Donax variabilis.

Have any of our members collected or observed Donax in the Long Island area this past summer? We would be interested in receiving a report.

dr

NYSC NOTES NUMBER 155 OCTOBER 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
DOROTHY JENSEN
31-08 Broadway
Astoria, N. Y. 11106

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: HAROLD FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

EDITORIAL STAFF

DOROTHY RAEIHLE 5346 82nd Street, Elmhurst, New York 11373
M. K. JACOBSON Museum Comparative Zoology, Cambridge, Mass. 02138
MILTON WERNER, Jr. 70 Richmond St., Brooklyn, New York 11208
A. D'ATTILIO Natural History Museum, San Diego, Calif. 92112

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, NOVEMBER 9th, 1969, at 2:00 P. M.

PROGRAM: LATIRUS and LEUCOZONIA IN THE NEW WORLD
by Robert Bullock, Museum of Comparative Zoology, Cambridge, Massachusetts

SOME OF THE SNAILS I MISSED
by Mathilde P. Weingartner, S.I.I.A.S.

DR. TURNER VISITS NYSC

Dr. Ruth D. Turner of the Museum of Comparative Zoology spoke at our October meeting and her title, "Adventures in Bivalve Development", was well chosen. She told of work in progress at the marine laboratories in Woods Hole and Nahant wherein workers are attempting to identify and catalogue the veligers taken in plankton samples from off the Massachusetts coast. In the laboratories, induced spawning and development of captive mollusks helps to identify the various species of veligers taken in the plankton. The project demands meticulous attention to details that vary from proper temperature of filtered sea water to the culture of naked one-celled algae ciliates that serve as food for the minute veligers.

The talk was illustrated with color slides and slides made with the remarkable electronic microscope. One of the slides was of the veliger of a Cymatidae, with its four thin velar lobes extended, which was taken in a plankton sample off Woods Hole. This was only one of the many species that ride with the ocean currents.

Dr. Turner is the expert on boring mollusks (shipworms) and the study of their larvae is most important in the fight to control their depredations. Dr. Turner gave us a brief outline of her work for the governments of Brazil, Puerto Rico, France and India, where she worked with other marine biologists in field study and laboratory work. Next year her adventures will be in the land down under, where she will be working at the request of the Australian government.

dr

35th ANNUAL MEETING of the AMU

The meeting of the American Malacological Union in Marinette, Wisconsin last July 21-25, presided over by President Joseph Rosewater, was another meeting to be remembered always with pleasure: Not only for the excellent presentations and the companionship of our associates but also for the beauty of the setting and the hospitality of the University of Wisconsin, the town, and our hostess Margaret C. Teskey. Delegates came from points as distant as Florida, Texas and California. At least 10% were members of the New York Shell Club.

There was the daily opportunity to collect freshwater species in Green Bay; one evening we were guests of Mr. and Mrs. Teskey at their place on River Road for collecting on a private island in the river. The collecting was abbreviated by a hard shower but the few who later

braved darkness to collect brought in some interesting specimens, among them the beautiful Lymnaea stagnalis, the smaller Lymnaea reflexa, and a fine specimen of Lymnaea megasoma.

The evening of the cocktail hour and banquet was most enjoyable. Dr. William J. Clench, our foremost authority on conchology, was the after dinner speaker and held his audience completely as he described situations and projects, past and present.

The first stop of the field trip was River Park, about 15 miles upriver from Marinette, where several gastropod and bivalve species were to be found. Then to Lake Mary and Julia, where the rare Lymnaea haldemani Binney might be found if the collector is lucky. This was the species depicted on the cover of our program, the shell and living animal having been most beautifully drawn by the expert pen of Dr. Harold J. Walter.

Late in the afternoon a few collectors returned to the Menominee River at River Park for another hour's collecting. As the sun was no longer directly overhead there was less surface reflection and visibility through the water was particularly good. It was the first unpolluted fresh water stream the writer had ever observed: the life in the stream was amazing! First to catch the eye was the motion of a crawfish -- there were whole families, from infants to grandfathers. Then, just standing quietly, one could see the mollusks, and as the eye became accustomed we saw too many to count; there were numbers of each species. There were Pleurocera acuta, Goniobasis livescens, Helisoma campanulatum, another Helisoma sp., Anodontoides ferussacianus, Elliptio dilatatus with its deep purple lining, the little limpet (Ferrissia sp.) on pebbles and on empty shells -- and other species for which I did not obtain names. Mrs. Teskey told us later that this river has 80 miles of unpolluted water and that the residents of the area are struggling to keep it that way, as the area is being "discovered" by city dwellers who would like to establish a cottage colony.

Suddenly the week was over. Dr. Rosewater had conducted a well run, informative, and lively meeting.

Newly elected for the coming year are Dr. Alan Solem, president, and Dr. David Stansbery, vice president. The 1970 meeting will be held in Key West, Florida; planned for July, dates to be announced.

Dorothy Raeihle

REVIEW:

PRONOUNCING THE SCIENTIFIC NAMES OF "SEASHELLS OF NORTH AMERICA"

Recorded by Dr. R. Tucker Abbott, produced and published by R. Tucker Abbott in cooperation with the Delaware Museum of Natural History, 1969. $4.95 postpaid from R. T. Abbott, 8044 Crittenden Street, Philadelphia, Pennsylvania 19118.

Dr. Abbott's latest publication is in the form of a 12", 33½ RPM high fidelity record. It is a service to the many of us who have faltered and stumbled over the pronunciation of molluscan names and descriptive terms. For example we take one small word, the specific name mus: Is it pronounced "muss"? "moose"? "mews"? Although we have read articles endeavoring to guide us in pronunciation, the

spoken word is far superior. Here Dr. Abbott enunciates over 1300 scientific words and terms. He prefaces his reading with the statement: "Actually there are no official or correct pronunciations of these Latin names, but rather only ones that are customary among professional malacologists. Even these may vary from one part of the world to another"." For advice in the pronunciation he thanks Dr. William J. Clench of Harvard University.

The listener has no difficulty in following as Dr. Abbott reads the names, found in his "Seashells of North America", as they are listed on the record jacket in the order of enunciation. These are followed by a reading of the names of several authors which are not infrequently mispronounced, a few family names, conchological terms and common names. All are listed on the jacket.

The record is of excellent tonal quality, the enunciation is clear, the jacket and listing a good example of coordination between interested workers. (Note to beginners: Follow the enunciation for pensylvani(c)a of Lucina, Platy(o)don, pl~~e~~ural. Follow the listing for cicatricosum, noachina, lacunella, Middendorff.)

To obtain the record, inquire of your local shell dealer or write directly to Dr. Abbott, enclosing remittance, to address above.

Dorothy Raeihle

BEACHES WHERE I HAVE GATHERED SHELLS

No. 6: TWOFOLD BAY at BOYDTOWN NEW SOUTH WALES, AUSTRALIA

by Vilma Wicks

It is assumed that Captain James Cook (1728-1779) missed sighting Twofold Bay because of weather conditions, as his log records "standing off-shore" while he was in that area.

It was in 1797 that surgeon George Bass, while exploring 600 miles of the coastline in an open boat (making tremendous maritime history) rounded the northern point of a bay, continued southward, and so experienced wonder and delight in discovering this bay "bent in the middle", forming what, on his return the following year, was the body of water officially recorded as Twofold Bay. It has 6½ square miles of navigable waters; there are twelve beaches.

Twofold Bay offered a safe harbour and refuge to shipping, particularly important in those days of sail. (In June, 1857, 22 vessels sheltered there, with protection not only for men and ships but the cargoes, with values to £100,000, that included cattle and sheep, wool, wheat, whale oil, wattle bark (Mimosa) etc.) Timber and water were plentiful in the surrounding countryside which was also good for grazing and pasture. The beach of golden sand was all that could be desired, with natural bushland right to the edge of the beach. The scenery presented much beauty.

This bay is so full of history that each part is worthy of its own story -- particularly the whaling and the killer whales whose exploits are in fact unique in the world.

This story is concerned with that part called Boydtown; named after Benjamin Boyd who came, and with great vision for the future devoted

his thoughts and energy in that direction. It is said that he was before his time. Maybe so. He had big successes and big failures. His dream of making Boydtown the capital of Australia was not to be, although it may have been a practical idea -- being halfway between Sydney and Van Diemens Land (later Tasmania).

At Twofold Bay a dominant headland forming a fold is called Eden. It is named after Baron Auckland, Secretary for Colonies, whose family name was Eden. Boydtown is directly south across the Bay.

In 1843, at a time when our earliest history was in the making, the first land sale in that area was conducted. Benjamin Boyd purchased 20 sections of land. His was the only bid. He had a number of reasons for buying the land. He wanted a depot for his ships, which were operating along the coast, to enable him to embark his cattle to the neighbouring colonies. His mind was teeming with ideas of development and he was responsible for great progress and employment. The land was gradually being farmed. In those years the only access was by the sea, and Benjamin Boyd built his Seahorse Inn (named after one of his ships) facing this beautiful bay. It was a fine building and now, being added to, offers accommodations to tourists all the year around.

In 1850 Benjamin Boyd left for California gold fields after his biggest financial failure. In 1851 he called in at the Solomon Islands on his way back to Australia; he disappeared after going ashore and was never seen again. It is thought that he met his death at the hands of the natives although historians differ in their opinions.

The only remains of Boydtown's original buildings are Boyd's Seahorse Inn, the lighthouse (73'high now), a telephone box, and the ruins of his beautiful church which was never actually completed. All the farm houses are gone. What remains is peace and tranquility. In forest areas around the bay one hears the unmistakable delicate tinkling sound that tells of the presence of the elusive little bellbirds. It is a place to enjoy a delightful holiday -- gathering shells, and watching the porpoise in their numbers.

The beach of Boydtown is rather wide, with a rocky headland at one end and a rock platform out into the sea, with limpets, chitons and the heavy whelk in evidence. Native trees grow to the very edge of the cliff. It was thought that many runaway convicts made a successful escape from here. The first shells gathered? I will hazard a guess that it was the first day the beach was walked upon!

Along the hight tide mark one mid-April one could pick up quite a selection of small dead shells, including the lovely rose-colored *Tellinota roseola*. One Christmas I was fortunate to find plenty of live Ostrich Foot shells, *Tylospira scutulata*. The deep-sea shells such as *Cypraea hesitata* and *Cypraea hesitata beddomei* are brought in by the trawlers at Eden, along with *Mamillana mamilla* and other species.

LISTING OF SHELLS FROM THE LOCALITY OF TWOFOLD BAY

Tonna cerevisina
Charonia rubicunda
Cymatilesta spengleri
Monoplex australasiae

Mayena australasia
Haliotis ruber
Negyrina subdistorta
Tylospira scutulata

(Twofold Bay, N.S.W., continued:)

Marginella muscaria
Cypraea hesitata
Cypraea hesitata beddomei
Mamillana mamilla
Ericusa sowerbyi
Amorena undulata
Zebramoria zebra
Uber aulacoglossa
Gazameda gunni
Floraconus anemone
Monia ione
Pyrazus australis
Subninella undulata
Torvamurex denudatus
Morula marginalba
Quibulla botanica
Philine angasi
Austrosassia parkinsoniana
Parcanassa ellana (or subspecies burchardi)
Xenogalea thomsoni (beachworn)
Cominella alveolata
Dicathais orbita
Dicathais textilosa
Loricella angasi
Bankivia fasciata
Bembicium nanum
Austrocochlea concamerata
Clanculus brunneus
Cantharidella picturata
Cellana tramoserica
Elegidion audax
Crepidula aculeata
Trichomya hirsuta
Limatula strangei
Katelysia gallinula
Chlamys asperrimus
Tucetilla striatularis
Spondylus tenellus
Notospisula parua
Mactra australis
Plebidonax deltoides
Solen vaginoides

(WEO/DR-Ed.)

A NEW NAME FOR MONOPLACOPHORA?

The name Monoplacophora was first proposed in 1952 by a paleontologist who necessarily merely studied the shells of mollusks. The fossil shells in this class bear a series of muscle scars which seemed to indicate that the animal contained in it still bore some signs of segmentation, like the annelid worms with which it had a common ancestor. Hence it reminded one of a chiton made up of a single instead of many plates or valves. Since chitons were called many-valve-bearers (*Poly*placophora) the name *Mono*-placophora (single-valve-bearer) immediately suggested itself.

But isn't a limpet, which monoplacophorans much resemble, also a single-plate-bearer? How distinguish this gastropod from the class of fossil mollusks? Besides, this term does not betray the real nature of the animal. It fails to indicate that the animal is a primitive mollusk, a sort of link between annelid worms and mollusks. Moreover the word is quite long, not particularly euphonious, and hard to say.

We think the work *Metameropod* is better. True, it is about as long but leaps much more easily to the tongue. It has other advantages. It makes use of the suffix *-pod* which ties in nicely with the other mollusk classes like gastropod, cephalopod, scaphopod, and pelecypod. The first part of the word is a combination of the Greek roots *meta* and *meros* meaning *with several parts* which in the form *metamerism* is used in zoology to indicate segmentation. Hence the meaning will be the *segmented-foot* animal.

Strictly speaking this is not correct. It is not the foot of *Neopilina* (the only genus of living monoplacophorans or metameropods so far known) which is segmented. The metameropod foot is as much a single

unit as that of any snail or limpet. The signs of metamerism are seen in the body above the foot, especially in the 5 or 6 pairs of oppositely placed gills. Hence the new word may be indicted on this ground. But similar objections can be raised to names of other molluscan classes as well. The stomach is not the foot of a gastropod nor is the head the foot of a cephalopod. And metameropod is no more misleading than these.

The suggestion has been made to use the term Gastrovermes -- stomach worm -- in place of Monoplacophora. The term here proposed has some obvious advantages.

Morris K. Jacobson

INVASION FROM HAWAII COUNTERED IN MIAMI

Everybody knows that Florida is spending millions of dollars every year to lure visitors to her beaches. Hence, it was surprising to read in the Miami Herald that the city of Miami is spending $30,000 to get rid of a visitor, even putting poison in his food!

The unwelcome guest arrived three years ago in the luggage of a boy who, returning from vacation in Hawaii, couldn't think of a better present for his grandmother than three live-collected Giant African Snails. He managed to sneak them past the plant control officials at the airport. But when the honeymoon with the little pets was over (or maybe grandmother didn't like snails at all) they were turned loose and have been reproducing ever since.

By September of this year the cone-shaped, almost seven-inch long snail, capable of producing 600 offspring a year, had spread to infest a 13-block area in North Miami where home owners picked up more than 250 in their backyards in several hours.

When State Agricultural Commissioner Doyle Connor finally was notified, he realized the serious threat to South Florida's plant life. The snails eat just about everything green and have an insatiable craving for calcium. They have already stripped leafy plants like papaya and citrus trees of foliage and defaced buildings by eating paint from houses to get calcium.

An emergency fund was set up to start a control program. Spraying from a plane was out because of the populated area. Conventional poisons don't bother Achatina fulica. Therefore, a baited arsenic poison of granular substance was applied by hand early in October.

Hal Jones, the director of the division of plant industry for the Florida Department of Agriculture and Consumer Service, announced that the distribution of the insecticide was 95% successful. "We'll treat the area once a week til November", he said, "thereafter it would be observed for about three years. We are asking people not to take the snails out of the area. They do it out of curiosity. We wish they wouldn't."

The original home of the Giant African Snail (Achatina fulica) is East Africa. From there it traveled over the last hundred years eastward to Asia then, during the Second World War, to almost all Pacific Islands and was intercepted alive at several American ports. Hawaii is the only place in the United States where Achatina fulica is established. In spite of intensive and continuous control measures, eradication has proved impossible.

Willie R. Antonowitz

NYSC NOTES NUMBER 156 NOVEMBER 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
DOROTHY JENSEN
31-08 Broadway
Astoria, N. Y. 11106

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: HAROLD FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

EDITORIAL STAFF

DOROTHY RAEIHLE 5346 82nd Street, Elmhurst, New York 11373
M. K. JACOBSON Museum Comparative Zoology, Cambridge, Mass. 02138
MILTON WERNER, Jr. 70 Richmond St., Brooklyn, New York 11208
A. D'ATTILIO Natural History Museum, San Diego, Calif. 92112

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, DECEMBER 14th, 1969, at 2:00 P. M.

PROGRAM: INDO-PACIFIC COWRIES (with color slides) by William E. Old. Highlights from the American Museum's *Cypraea* collection will be displayed. After his presentation, Mr. Old will conduct a cowry identification clinic -- so bring in your problem cowry!

SHELL-OF-THE-MONTH by Nick Katsaras

SHELL SHOW DATES

(The editors would appreciate receiving additions or corrections regarding the following schedule of Florida Shell Shows.)

Broward County Shell Club, Fort Lauderdale: Mid-February (12-14)
Palm Beach County Shell Club, West Palm Beach: February 18 - 22
Naples Shell Club: " 20 - 22
Saint Petersburg Shell Club: February 25 - March 1
Southwest Florida Conchological Society, Cape Coral: February 27 - March 1
Sanibel-Captiva Shell Club: March 5 - 7
Central Florida Shell Club, Orlando: Second weekend in March (12-14?)
Greater St. Louis Shell Club, St. Louis, Missouri: May 2 - 3

(NYSC members will be interested to know that Mr. Old will act as one of the judges at the following shows: Cape Coral, Naples, Sanibel-Captive and St. Louis, and that Dr. William K. Emerson will be at Fort Lauderdale to judge the Broward County Shell Show.)

JULIA CLENCH

It is with sadness that we report the passing in October of Mrs. Julia Clench, wife of Dr. William J. Clench. Mrs. Clench frequently attended A. M. U. conventions, or entertained "Doc's" students at their home in Dorchester, Massachusetts. She is survived by her husband, their sons, and grandchildren.

It was in 1942 that the name *Conus juliae* was proposed in her honor, and the shell described and figured in "Johnsonia", by her husband.

WEO

PHILIP HANO

Mr. Philip Hano passed away on October 30th. He had celebrated his 80th birthday on October 5th. Though in declining health, he was actively engaged in dispensing shells until the middle of October. Mr. Hano had been a business man nearly all his adult life. In recent years he operated a curio shop, stocked with African carvings, ceramics, brassware, coins, and assorted trinkets. About 1963 he

became interested in specimen shells; he joined the New York Shell Club in October of that year.

At age 75 he began learning scientific names, localities, and sources of shells. At one time he mentioned "writing 75 letters a week to obtain shells". His first specimens came from the Philippines; later he received shells from Formosa, Zanzibar, Brazil, Australia, New Zealand, and many other areas. Many of his most remarkable specimens came from Formosa, or Taiwan, as it is often called.

Among the shells he introduced to collectors were *Conus stupella*, *Lyria kurodai*, *Murex alabaster*, *Calliostoma formosense*, and *Cypraea pulchella*. Among shells that had been rare, or not available for many years, were *Mitra zonata* (Adriatic), *Cypraea marginata* (West Australia), *Voluta bednalli* (Torres Straits), *Cypraea mus* (Venezuela), *Turbo jourdani* (South Australia), *Conus coccineus* (Philippines), *Conus adenensis* and *Cypraea pulchra* (Arabia), *Marginella lilacina*, *Ancilla lienardi*, and many others, from Brazil. These and many more species were handled at the shop on 89th and Third Avenue. Philip Hano's sojourn in shells was brief and meteoric. His business is being liquidated, but he will not be forgotten by the shell world.

William Old

THE TERTIARY NON-MARINE MOLLUSCA OF SOUTH AMERICA

by Juan J. Parodiz

Annals of Carnegie Museum, Pittsburgh, Pa., Vol. 40, issued June 30, 1969. 242 pp. including index and bibliography, 19 photo plates, 7 maps. The "Popular Summary.." sent out by Carnegie Museum follows:

This book, one of the most important ever published by Carnegie Museum, is the product of 20 years of research by its author. It is the only comprehensive summary of the Tertiary fresh-water mollusks of the entire South American continent. It is thus also a basic reference for correlating the geological ages of South American fresh-water sediments with those of the rest of the world.

But Parodiz's book is also part of the story of a great faunal (animal) migration from North to South America that took place over a period of 70 million years. The book deals with the land- and fresh-water shells that lived during that long period -- the Tertiary. These are the shells now found as fossils in South America. Until the end of the Mesozoic -- the geological "middle age" -- there was no land connection between the areas that are now North and South America. Later, when the Cenozoic era began 65 million years ago, the continents became united. Even though it didn't last long, there was land communication for the first time. The dinosaurs had vanished from the land, and the spiral-shell ammonites from the sea. A new realm of life began in which the mammals -- the group to which man belongs -- were to predominate. Most of the shells that "took residence" in South America at that time had had ancestors in Wyoming and Pennsylvania. Although some of the major shell groups died out in North America, they survived in South America. The earliest mammals of southernmost South America also had originated in North America, and there were even South American plants that were similar to

old plant life of the Dakotas.

By mapping many fossil localities, Parodiz has traced the route of migration, which in general followed the present Pacific coast of the two Americas. Some 13 to 15 million years ago, a second, two-way migration began (which is still going on) when North and South America were joined again. During the 40-million-year separation of the two continents, the South American animals were isolated, and evolved into the unique characteristics of the present fauna.

- - - - - -

Copies of this publication may be obtained from Carnegie Museum, Carnegie Institute, Pittsburgh, Pa. 15213, for $7.00, plus .25 mailing fee, and .42 tax for Pennsylvania residents.

(Louise Travers Barnaby has kindly donated a copy of Dr. Parodiz' "The Tertiary Non-Marine Mollusca of South America" to the NYSC Library.)

NOTES FOR A HISTORY OF MALACOLOGY IN THE NEW YORK AREA

From: AMERICAN JOURNAL OF SCIENCE AND ARTS, 1848, Vol. 5, Second Series, pp. 110-111.

9. On the Remains of Marine Shells of Existing Species found interspersed in deep portions of the hills of Drift and Boulders in the heights of Brooklyn, on Long Island, near New York City; by W. C. REDFIELD. --- These remains had long since attracted the attention of Dr. Mitchill and other naturalists of the vicinity, but the true character of the formation and the peculiar positions in which the shells were found, were not distinctly known to geologists.

It fortunately happened that M. Desor and Count Portals, while on a visit to Brooklyn a few months since, discovered fragments of these remains in the great masses of boulder drift in South Brooklyn, through which the new streets are being excavated. At their invitation Mr. R. had examined the place, in company with Prof. Agassiz, and had obtained a variety of specimens which were found at depths varying from twenty-five to forty feet below the original surface of the hills in which they were imbedded.

Since that occasion Mr. Redfield has found similar remains in these hills, about two miles northward from the first locality, and has collected numerous specimens which he exhibited to the meeting, together with samples or fragments of the original beds inclosing these shells, which had been dispersed by the drift and thus lodged in the Brooklyn hills. The number of species comprised in the collection amounts to ten or twelve, among which are those now most common to our shores.

These discoveries in regard to the drift appear to agree with those which Sir R. Murchison states to have been found in the drift of Europe. They must be admitted as proving that the most common species of our present Mollusks were of prior origin to the hills where the remains were found, and probably older than the entire formation of drift and boulders which is found in the Northern States.

The species obtained are not such as indicate a colder climate than now prevails. But the shells found by Prof. Emmons and others in the Pleistocene clays on the borders of Lake Champlain, and by Mr. Lyell and others in Canada, appear to belong to a later period of the drift, and Mr. Redfield infers that they were brought in from more northern regions or from deeper waters, by the great arctic currents which must have swept over these regions during the drift period, when this portion of the continent was deeply submerged.* These polar currents annually freighted with immense fields and islands of floating ice, such as are now diverted along the shores and banks of Newfoundland till they are met by the dissolving influences of the Gulf Stream nearly in the latitudes of Boston and New York, he considered to be among the chief agents in producing the remarkable phenomena of the drift period.

*(Notice the attempt to explain the drift by "great arctic currents". This was before the days when the ancient existence of glaciers was known.)

M. K. Jacobson

ADVENTURES IN AFRICA

by Francis Harmon

In 1962, we "invaded" the African continent from the north and east, visiting Egypt, Ethiopia, Kenya, Uganda and Tanzania, (then Tanganyika and Zanzibar). Four years later we emulated Hanno of Carthage who, around 500 B. C., sailed around Africa's hump to explore the Sierra Leone area. On August 20, 1966, 7½ hours after taking off from Kennedy International Airport, we landed at Dakar, the capital of Senegal on Africa's western hump.

Our interest in sea shells provided the occasion for visiting some villages outside Dakar. M'Bao, one such village off the main road to Rufisque, was accessible over a gravelled streak between the lush tropical growth which leads to it. The village was just off a sandy beach where fortune smiled. The trip was planned for early morning when the tide was out. We found a boxful of colorful and uncommon shells, chiefly *Volutidae* (*Cymbium patulum* and *Cymbium pepo*). Enough were secured, wrapped, packed, and shipped by sea mail to provide gifts to half a dozen collectors on our mailing list plus enough more for members of the New York Shell Club.

As often happens, one goes far afield in search for something more easily found at home. It was the bits of sand among the rounded basalt rocks of the beach a few yards from the N'Gor Hotel near the Dakar airport which yielded the real treasures. There I picked up an unblemished specimen of *Conus papillonaceus* and a fair specimen of *Conus genuanus*, which brought pleased smiles from her ladyship and a sense of achievement to her man in waiting, on temporary leave from baggage handling. . . .

Abidjan, capital of The Ivory Coast (de Cote d'Ivoire), is indeed "the Paris of West Africa"! It has beauty, class, and liveliness. A lovely lagoon (Laguna Ebrie) twists and turns through the city, reminding one of the lakes of Orlando and Minneapolis. Broad, paved streets wind through new housing developments and straighten as they pierce new industrial areas under development. A ship canal, leading

from the Atlantic, ends at the busy port which stretches for miles with industrial plants at the water's edge, as in Houston.

Part of the planning for this trip was advance correspondence with individuals and agencies interested in sea life. Thus we had been given the name and address of Monsieur Pierre LeLoeuff, director of the Centre Recherches Oceanographic in Abidjan. While searching out this laboratory which had no street address, I saw several miles of Abidjan's port installations. Mr. LeLoeuff arranged for Waverley to visit him. He showed her his private collection of molluscs, took her to a dock where local fishermen came in with their catches, and was instrumental in acquiring for her from a fisherman two rare specimens of Conus genuanus hauled up from the briny deep with the fish.

Following the pattern of many collectors, he and Mrs. Harmon are exchanging some sea shells. She came away with his gifts to her. Her spare shells from Sanibel Island, Florida, were mailed to him later.

Our five weeks in South Africa were planned as the highlight of the trip. The seasons are reversed, so we arrived in Johannesburg in early spring. After a five day trip through Kruger Game Park (200 miles long and vast in extent) we flew to Cape Town -- Winston Churchill's "Tavern of the seas" and "the only proper place from which to begin a tour of South Africa".

The special feature of this safari was a 1200 mile journey in a rented car along the lovely beaches from Cape Town to Durban in search of exotic sea shells for Waverley's already outstanding collection of molluscs from places near and far. The Harmon travel itinerary was built around the date of the September full moon. On that day, September 29th, we were to be at Haga Haga, a shell collectors' paradise on the Transkei coast with a full moon pulling a seven foot tide far out to sea and then bringing the rushing waters to peak points along the beaches where certain fish and marine animals will lay their eggs and leave them for incubation until the highest tide of the next full moon once again relates the new life to the mother sea.

In 1965, Dr. Grace Eddison came back from these beaches with 1200 specimens of interesting, colorful, and in some cases rare sea shells.

Many dead shells picked up along the beaches are, as Emerson put it, "poor, unsightly, noisome things" that "left their beauty by the shore with the sun and the wind and the wild uproar". But even among a beach-strewn mass of shells from which the animals have taken "terminal leave", discerning eyes can pick out fresh, undamaged objects of intricate workmanship, daintiness and entrancing colors. And when the water ebbs, one finds in tidal pools, or attached to exposed rocks or burrowing beneath shifting sands the live animals wearing protective shells of infinite variety and sometimes of surpassing loveliness.

The Harmon African Conchological Expedition ended successfully at noon of October 13 on slippery, lichen-covered Reunion Rocks, ten miles south of the booming city of Durban. The incoming tide, driven by a strong wind, whipped over the edge of the high sandstone plateau jutting out into the sea. A great splash of frothy surf drove us away from the shell-rich tidal pools, crevasses and grottoes of the

promontory back to the safety of the high tide line on shore. Moments later, after refreshing hot coffee from a thermos, we were exclaiming over new, live varieties of molluscs added to the treasure trove secured over the past month on our tour of a score of beaches from Kommetje Light on the Atlantic side of "The Cape" to Durban Bay on the Indian Ocean.

The most productive single day -- and the longest -- had started with a twenty-mile trip by car from a fishing camp called "The Haven", where we lived in a Rondavel with thatched roof, to another fishing camp a mile west of the Nthlonyane River. Then we walked for six miles eastward, crossing both the Nthlonyane (pronounced "C-lon-yan-e") and the Xora (pronounced "Cough-a") Rivers whose mouths happily were "sanded up". The six miles back to the car seemed long but the twelve miles was along rocky promontories and beaches where shells were sometimes piled a foot high! From the live and fresh-dead ones we culled no less than 42 Voluta africani, 16 Phalium zeylantica, 142 Cones of various species, 131 Cypraeidae of various species, 28 lovely Marginellas, and a miscellaneous assortment of Cymatium doloria, Ancillas, Neritas, Patellas, Cassis, Turbo, and other varieties. On the return trip a tall Bantu woman, weighted down with brass bracelets and anklets, carried my full bucket of shells on top of her head in a twenty-mile breeze treading the sand as gracefully as if crossing the ballroom floor and never once touching the bucket with her hands. . . .

South Africa is a country as large as Texas, Oklahoma and New Mexico combined. Its population of more than 17,000,000 (in 1963) included 11,650,000 blacks, 1,650,000 coloreds, 500,000 Indians, and 3,250,000 whites -- chiefly of British and Dutch extraction. Some four million of the blacks are in and around the cities and towns; another four million in The Transkei (an area the size of Denmark "reserved" for the Bantu peoples and their cattle, sheep and goats, through which we motored back and forth for ten days); and the remaining three million plus are tenants on the farms of white landowners, mostly Africaners.

The most ridiculous and anomalous case is that of Umtata, "capital city" of the Transkei, the number one "Bantustan" where the pastoral Bantus are supposed to maintain their tribal ways and "develop to the limit of their capacity" in a land of rolling pastures, eroding hillsides and lovely mountains. Umtata is a trading center, hence white merchants, bankers, and shopkeepers wanted the economic advantages the place offered. So Umbata was classified as a municipality restricted to white residents only. But the parliament building on the main street had to be classified "African only" since, in its chambers, duly chosen representatives of the Bantu tribes (plus their chiefs who are on the government payroll) would be gathering ever and anon to legislate for "Bantu development to the limit of Bantu capacity". So I took a picture of a parliament building exclusively for blacks in a city limited to white residents only in a "Bantustan" set apart exclusively for Bantu development, in a white republic in a continent predominantly black.

I returned home convinced that "Apartheid" is morally wrong, economically wasteful, physically unworkable, politically shortsighted, and biologically futile. I subscribe to the statement of R. C. Archbishop Denis Harley of Durban: "Apartheid's evil is its refusal of recognition of human dignity...to fight it is the challenge of every Christian.."

NYSC NOTES NUMBER 157 DECEMBER 1969

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Sec'y
ANGELA SAVINO

Corresponding Sec'y
DOROTHY JENSEN
31-08 Broadway
Astoria, N. Y. 11106

President
MILTON WERNER, Jr.
70 Richmond Street
Brooklyn, N. Y. 11208

Vice President
MART HULSWIT
680 West End Ave.
New York, N. Y. 10025

Historian
NICK KATSARAS

Treasurer
MATHILDE P. WEINGARTNER
17 Amelia Court
Staten Island, N. Y. 10310

Librarian: HAROLD FEINBERG, 2334 Tiebout Avenue, Bronx, New York 10458

EDITORIAL STAFF

DOROTHY RAEIHLE 5346 82nd Street, Elmhurst, New York 11373
M. K. JACOBSON Museum Comparative Zoology, Cambridge, Mass. 02138
MILTON WERNER, Jr. 70 Richmond St., Brooklyn, New York 11208
A. D'ATTILIO Natural History Museum, San Diego, Calif. 92112

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JANUARY 11, 1970, at 2:00 P. M.

PROGRAM: EXPEDITION TO BARROW ISLAND, WESTERN AUSTRALIA by Dr. Barry Wilson. A "Shellecture" (Slides with taped narration.)

NEW SHELL BOOKS (with slides) by William E. Old

SHELL-OF-THE-MONTH (with slides) by Dorothy Raeihle

ADDITIONAL SHELL SHOWS ANNOUNCED:
(See also NOTES No. 156)

From SEAFARI, TEXAS CONCHOLOGIST, and FORT MYERS Club papers:

BROWARD COUNTY SHELL CLUB, Fort Lauderdale, Florida	February 13-15
SOUTH FLORIDA SHELL CLUB, Miami, Florida	January 24-26
FORT MYERS SHELL CLUB, Fort Myers, Florida	February 9-14
FORT MYERS BEACH, Florida	February 23-March 1
SARASOTA SHELL CLUB, Sarasota, Florida	March 5-8
SOUTH PADRE ISLAND SHELL FAIR, Texas	March 1

(Those desiring a schedule for the South Padre Island Shell Fair should write to the chairman, Mrs. Betty Allen, Box 822, Port Isabel, Texas. As two schedules were published for the FORT MYERS BEACH Shell Show -- Feb. 16-21 and Feb. 23-March 1 -- we suggest that visitors check locally.)

Shell-Show hoppers will be kept busy this season -- twelve shows being on the calendar from late January (South Florida) to mid-March (Orlando). In previous years the highly prized Academy Award was given by the Academy of Natural Sciences of Philadelphia. It has now been replaced by

THE du PONT TROPHY

The annual award made by the Delaware Museum of Natural History for the most outstanding exhibit at the shell show shall be given to the person or group responsible for the exhibit of mollusks which has contributed most to the success of the show and which has been the most instructive or inspiring to visitors because of its attractiveness, educational value, and scientific accuracy. The purpose of the award is to stimulate the entry of exhibits which will further the public's interest in and appreciation of the hobby and scientific study of mollusks. The official judges of the shell show shall determine the winner.

(The Trophy should not be given to any exhibit which has previously won it at this or any other shell show. An exhibitor may receive more than one du Pont Trophy during the year at other shows on the basis of entirely different exhibits. However, the maximum number of du Pont Trophies that can be won by any one individual or group is five.)

The Delaware Museum of Natural History
John E. du Pont, Director
Greenville, Delaware 19807

An invitation from:

The AMERICAN MALACOLOGICAL UNION, INC.

December 1, 1969

Dear Shell Collectors:

On behalf of the officers and executive council of the American Malacological Union, Inc., I am pleased to invite you to our 36th Annual Meeting at Key West, Florida from July 16-20, 1970. Our meeting is open to both amateur and professional students of mollusks and provides opportunities, both formal and informal, of interest and value to all. We expect to have most of the leading figures in American malacology participating, and I want to give you a sample preview of the program. Of special interest to amateurs are talks by William J. Clench on the history of Florida malacology, Harald Rehder on how to identify Harpa, Tucker Abbott on Cassis and a banquet address by Gilbert L. Voss of the University of Miami featuring color photographs of living cephalopods. More technical contributions will include a session on "Biological Systematics of Marine Bivalves and Gastropods" organized by Robert Robertson, a symposium on commercially valuable marine mollusks organized by Arthur Merrill and papers dealing with introduced mollusks. The meetings are timed to coincide with minus tides and several unusual and interesting field trips will be available. The very popular "Shell Club Night" is being organized by John Root, and part of another evening will be devoted to an identification clinic for problem cone shells, featuring Bill Old of New York.

Information concerning accommodations and reservations will be available about March 1, 1970 from Mrs. Ann Young, P. O. Box 846, Marathon, Florida, 33050. (This information will be published in these NOTES -- Ed.) While both AMU members and non-members are equally welcome to attend, priority on accommodations at the convention center and for space on the field trips must be given to AMU members in good standing.

Our meeting is planned to provide a minimum of formally organized social affairs and a maximum opportunity for informal contacts between amateurs and scientists. Because Key West is located far from an active shell club, the general chairman, Mrs. Ann Young, will greatly appreciate individual offers of help in running the meeting. We are doing our best to provide both an enjoyable and meaningful session for all in attendance. Please join us next summer.

Very sincerely yours,
Alan Solem, President
AMERICAN MALACOLOGICAL UNION, INC.

Field Museum of Natural History
Roosevelt Road at Lake Shore Drive
Chicago, Illinois 60605

JOSEPH GOLDEN

We were saddened to learn of the death, in Richmond on October 20th, of our member Dr. Joseph Golden. Our deepest sympathy is extended to his wife, and to his sister Mrs. Bella Kudatsky.

ROBERT BULLOCK VISITS NYSC

Mr. Robert Bullock of the Museum of Comparative Zoology, Harvard University, was guest speaker at our November meeting and gave a most interesting presentation on "Latirus and Leucozonia in the New World". Mr. Bullock has studied a great many specimens of these genus, in museum collections and of his own collecting, from the area of our southeastern coast, the Caribbean, and the Panamic Province. With the aid of color slides he acquainted us with the tremendous variations that can occur within one species of a family. These variations are generally attributed to the fact that these particular genus being studied have non-pelagic larval development (i.e.: the young hatch crawling); this means that there are populations at isolated stations that have developed through the years to become distinct from all others. He showed us several groups of slides demonstrating such variations in different species. For instance, the slides of Latirus brevicaudatus included an illustration of the type figure in Reeve, 1847, a typical specimen from the Virgin Islands which he found to resemble the paratype in the British Museum, a form from Cardenas Bay, Cuba that appears distinct, a 3" long specimen from Curacao where the species grows large, and a very squat shell from St. Croix. Thus with specimens from our southeastern coast, the whole Caribbean and the Panamic Province he has been able to map a most interesting geographic pattern.

Look-alikes in a few species of Latirus and Leucozonia are separated into their proper genus by a study of the radulae. Mr. Bullock observed that one thing that will be very helpful in determining the higher classification within the family will be observation of egg capsules -- the types, their development, and live study. Unfortunately no studies of living Latirus have as yet been reported.

Much of the researchers' work is involved with study of the literature. It is frequently discovered that in the 18th and 19th centuries more than one author has described the same species, each giving it a different name, often including uncertain or very general data as to locale, and generally from a dead and empty shell. Every once in a great while a juvenile and adult of the same species would be given different names. (Thus the importance of live study!) The result has been confusion and much work for later students.

Of the great number of valid variations in a species, such as he had shown to us, Mr. Bullock remarked that if each was to be given a name the student would become hopelessly lost in the maze!

A STATE SHELL FOR NEW YORK ?
MOLLUSKS ON U.S. POSTAGE STAMPS ?

It has been suggested from time to time that, as individual States of these United States have a "State Flower", a "State Tree", a "State Bird", why shouldn't a molluscan species be officially designated as "State Shell"? The North Carolinians did something about it. On May 28, 1965, the General Assembly of the State of North Carolina enacted a bill establishing the Scotch Bonnet, Phalium granulatum Born, as the official seashell of the State of North Carolina. In the North Carolina Shell Club's Bulletin for 1966 an article by Paul Jennewein

describes the club's modus operandi -- a beautiful story of members' cooperation and gentle persuasion.

On June 18, 1969, Governor Claude Kirk signed House Bill No. 568, thus officially designating Pleuroploca gigantea Kiener 1840, the Horse Conch, the state shell of Florida. It is a most appropriate choice as it is found living completely around the State of Florida; it is found as a twelve million year old Miocene fossil in central Florida. The Palm Beach County Shell Club, with Mrs. Margaret Kennedy as spokesman, initiated the action. Corinne Edwards reports on the matter in the Miami Malacological Society's "Quarterly", Fall 1969.

As for philately, many of us search out and collect postage stamps on which mollusks or their shells are pictured. There are many such foreign stamps; we know of none from the U.S.A. -- not even on non-postage stamps like the conservation stamps distributed by National Wildlife.

If you feel that our favorite phylum should be officially recognized as the important part of our wildlife that it is, whether by designation, as a state mollusk, or by getting it represented on a stamp -- Well, the Shell Clubs of North Carolina and Florida have pointed the way . . .

dr

TO CAPE COD, ON OUR FIRST WEEK-END FIELD TRIP

For a shell club on the northeastern coast of the U.S., planning a field trip is something like getting ready to buy salt. You wouldn't decide not to, but you don't get excited enough to tingle, exactly. And making a choice from what's available can almost be done by placing one hand over the eyes and stabbing with the other index finger. After the fourth successive trip to the same place -- Long Island's Orient Point, for example -- one gets the feeling that the collecting would have been as good on the floor of the kid's room.

Actually, most of the pessimism is relative. The trick is to quit wishing your club address were Key West or Honolulu, and remember the excitement and satisfaction of the good finds. There are always some. And teamwork and rivalry and just plain sociability are the same everywhere -- even among rock hounds, bird watchers, and members of inland shell clubs. (Remembering them helps!)

Nevertheless, our vice president Mart Hulswit did say, after the '68 trip to Orient, "Why don't we have a week-end field trip next year?" And when the idea was proposed, last spring, it generated enough interest to become a reality. With our range thus extended to the distance a normal nut would consider driving on a Friday night, those who were interested picked Cape Cod -- mileage well over 200.

Acting on the advice of Dr. Ruth Turner, of the Museum of Comparative Zoology (Cambridge, Mass.) and Dr. Earl Reed, of the Springfield (Mass.) Science Museum, who suggested shelling spots, we chose West Dennis as a central point. It's half way out to the elbow, near the southern shore. Ten members made the jaunt, augmented by two adult and two subteen kinfolk.

In this part of the world, it's the winter-spring rates that are attractive, so we chose the week-end of June 28-29 -- the last before the price change and the crowds. It was necessary to make advance

reservations (at a motel that proved excellent) for a group the size of ours, but there was plenty of room to move. Except, that is, in the State camping areas. The four Hulswits were forced to make a midnight search (successful) for a motel room. At the collecting spots there was more than enough room to swing a rake. The water, which is never warm, doesn't invite a leisurely dip in June. Glenn Goodfriend and Mart did some snorkling, but it required courage. The air, and the weather in general, however, were delightful.

Most of the 39 species in the checklist are old friends, but our longest Orient list for a single trip numbers 27. The most exciting find was one of a half-dozen Chaetopleura apiculata. Bella Kudatsky, during a stop-and-stoop walk along the water's edge at Kalmus Beach, found one an inch long. It was on one of thousands of dead Argopecten pairs gathered by the action of the small waves.

As the list shows, localities 1 and 4 were good and the others poor. The attraction at Skaket Beach was the tide flats, which at times extend for two miles. We found plenty of exposed flat but little else.

Lunch on Saturday was a picnic, with ingredients from a wayside store along the road from the previous shelling place. The overall attraction of Cape Cod that week-end can be judged by the wholesale changing of plans on Sunday afternoon. A few of the company had planned to stay through Monday; the caravan that headed home on Sunday consisted of but one car. In it were two rueful working stiffs who had said goodbye at Kalmus Beach, during preparations for a beach-picnic supper for twelve.

Milton Werner

LOCALITY CODE -- NYSC FIELD TRIP -- CAPE COD, MASSACHUSETTS -- 1969

1 - Grand Cove, west shore of Bass River Inlet, ½ mi.inshore W.Dennis
2 - Chatham Light, at the point of the Cape Cod elbow.
3 - Skaket Beach, inside the elbow, Cape Cod Bay, west of Orleans.
4 - Kalmus Beach State Park, Hyannis, on Nantucket Sound, west of Pt. Gammon.

Nassarius vibex	1
trivittatus	1.4
obsoletus	1
Busycon carica	1
canaliculatum	1
Crepidula fornicata	1.2.3.4
plana	1.4
convexa	1.4
Acmaea testudinalis	4
Mya arenaria	1.2.3.4
Mercenaria mercenaria	1.3.4
Laevicardium mortoni	4
Astarte castanea	3
Argopecten irradians	1.2.3.4
Placopecten magellanicus	4
Chaetopleura apiculata	4
Gemma gemma	1.4
Tagelus plebeius	1.2.3.4
Siliqua costata	1.4
Ensis directus	1.4
Spisula solidissima	2.4
Crassostrea virginica	1.4
Teredo navalis	4
Modiolus demissus	1.3.4
modiolus	1.4
Mytilus edulis	3
Anadara pexata	4
transversa	4
Anomia simplex	1.2.3.4
Lunatia heros	1.4
Littorina littorea	1.2.3.4
obtusata	1.4
saxatilis	1.4
Urosalpinx cinerea	1.4
Eupleura caudata	1.4
Lacuna vincta	1
Anachis avara	1
Bittium alternatum	1.3
Odostomia sp.	1.4

Mart Hulswit

THE SLIMY LIVES OF MOLLUSKS

by Morris K. Jacobson

Snails together with toads and puppy dogs' tails, go, says the verse, into the making of unpleasant little boys. Snails enjoy this unenvied reputation because they are cold and slimy and messy and simply not nice. (??--Ed.) Now, glands which produce mucus are not found only in mollusks. Creatures of other animal phyla, including ourselves, also enjoy this property. But in no other animal phylum has the use of mucus or slime become so varied and widespread.

Mucus is used by land snails to lay down a trail -- much like a tractor -- over which they move. Freshwater pulmonates like Physa and Lymnaea make a thread of mucus on which they crawl to the surface of the water for a lung-full of air. Land snails leave their slime trails behind them in the shape of silvery trails, but the freshwater snails roll their threads up as they ascend. I have noted similar behavior in the Dove Snail, Mitrella lunata, in a tank.

Some slugs like Limax make other use of a mucus rope. One end of such a rope is fixed to a tree branch and then a pair of slugs descend on it together to engage in an elaborate mating ceremony while swinging in midair. After they have mated, they climb up the rope again and go their own ways. I have not yet discovered how they decide which of the two is to keep the mucus rope.

Slime threads are also used by mollusks in feeding. Some extrude such threads into the surrounding water and trap little creatures on which they feed. Others, mainly clams, draw the food-laden water in by the incurrent siphon, and select the edible particles which are then caught up in a slime sheet. Both the slime threads of the first and the slime sheets of the second are then rolled up on a long, rod-like structure which serves as a winch. This structure is called the crystalline style. Apparently the style is then drawn into the stomach and style and slime-trapped food digested simultaneously. In some mollusks mucus is used to trap waste products and then mucus and waste are eliminated together.

Mucus is also used in defense. Anyone who has ever picked up a slug, especially such a large, tropical slug as Veronicella, learns this very quickly. The attacked slug exudes abundant and offensively sticky masses of slime which quickly discourage both collector and predator. The mucus apparently has an offensive flavor for slugs are quickly rejected by birds and small animals who try to use them for food. When a shelled land snail is attacked by a hungry beetle, it tries to protect itself by bubbling out large quantities of impenetrable slime bubbles. Air-hardened slime also forms the epiphragm or false operculum which estivating or hibernating snails use to protect themselves from drought or cold respectively. Some Bulimulus tree snails use slime like glue to fix the lip of the shell so strongly to a tree that the animal can only be removed with difficulty. Frequently it is necessary to cut away a bit of the bark to which the creature is clinging.

Another use of slime by mollusks is in egg-laying. Freshwater snail eggs are imbedded in slime masses which are fixed to underwater objects. In this slime the eggs stay until they hatch. The Moon Snail Natica builds its jar-shaped egg case by binding sand grains together

with slime which hardens into a gelatine-like substance on contact with the seawater. Similarly, hardened slime is also used to form the bubles which go to construct the raft to which Ianthina, the Violet Snail, is attached and on which it hangs its eggs.

And finally some snails use slime as a building material to construct shelters for their egg masses. It is reported that the lovely Philippine tree snails of the genus Helicostyla deposit their eggs in leaves rolled up into cornucopia stuck together with mucus and lined with the same material. Some species of Javan Amphidromus also form nests for their eggs by plastering leaves together.

I have undoubtedly overlooked some other purposes to which mollusks put the mucus they secrete. But enough has perhaps been shown to indicate how important this generally unpleasing secretion is in the economy of molluskdom. And when we call snails slimy we are righter than we think.

THE TIDEWATER SHELL AND FOSSIL CLUB

We are pleased to welcome Virginia's first shell club: The Tidewater Shell and Fossil Club has had two meetings -- at Virginia Beach in November, and at Norfolk in December. Bill Old attended and was the speaker at both meetings; he reports that the group is enthusiastic.

Elections were held in December, and inquiries may be directed to their first president, Emily Whalen, c/o The Norfolk Museum of Arts and Sciences. The club has already produced the first issue of their news bulletin,"The Tidewater Triton". We wish them all success and hope to hear more of their activities!

DEPARTMENT OF TRIVIA: At the Hallmark Gallery on Fifth Avenue there was recently an exhibit concerned with various arts of prophecy, such as astrology, phrenology, numerology, palmistry, teacup reading, etc. In a panel of illustrations explaining the meaning of dreams, one illustration showed a person dreaming of a shell, with the caption reading "Dreaming of a shell prophesies a visit from a disreputable person who will try to enlist your aid in devious business." !

George Raeihle

DID YOU KNOW.. That as an Annual Member of the American Museum of Natural History (dues $15.00 yearly) you receive a membership card, two paperback books, ten issues of NATURAL HISTORY, shop discounts, a book of free parking tickets, tickets for programs of special films with speakers, free Planetarium visits to six Sky Shows with a guest, discounts on open-registration courses? You should direct your application for membership (enclosing check) to The American Museum of Natural History, Central Park West at 79th Street, New York, New York, 10024.

That our Museum will mail to you within the metropolitan area, free upon request, their Calendar of Events which is published monthly from September through June?

That there is also a Family Membership with additional benefits, in which your immediate family participates? ($25.00 yearly.)

Date Returned
er's Name

THE HECKMAN BINDERY INC
BOUND TO PLEASE
JJLY 70
N. MANCHESTER,
INDIANA

AMNH LIBRARY
100092229